Public Works Department
Bombay Presidency

Irrigation Administration Report

Part I—Deccan and Gujarat

For the Year 1931-32

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CONTENTS

	Pages
Diagram showing expenditure on irrigation works from loan funds and revenue.	At the beginning of the Report.
Diagram showing expenditure on establishment in the Roads and Buildings and Irrigation Branches.	
Statement showing expenditure on establishment in the Roads and Buildings and the Irrigation Branches.	
General description of Irrigation	1-2

SECTION I.

COMPRISING IRRIGATION WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.

General Remarks	3-10

DETAILED REPORTS BY LOCAL OFFICERS.

Northern Circle.

Hathmati and Khari Cut Canals	10-11
First Class Irrigation Tanks in Gujarat	12
Wangroli Tank	12-13
Savli Tank	
Saiat Tank	
Tranza Nagrama Tanks	
Futelao Tank	

Irrigation Development and Research Circle.

Nira Left Bank Canal and Shetphal Tank	14-15
Nira Valley Development Project	15

Deccan Irrigation Circle.

Lloyd Dam and Nira Right Bank Canal	16-18
Diagram showing Working Record for Nira Right and Left Bank Canals ..	Facing page 16
Diagram showing Financial Record for Nira Right and Left Bank Canals.	
Mhaswad Tank	18-19
Mutha Canals including Matoba Tank	19-20
Kasurdi Tank	21-22
Shirsuphal Tank	
Bhadalwadi Tank	
Godavari Canals	22-24
Chankapur Tank—Girna Left Bank Canal	24-25
Kadwa River Works	25-26
Parsul Tank	26-27
Pravara River Works	27-29
Diagram showing Combined Working Record of Godavari and Pravara Canals.	Facing page 28
Diagram showing Combined Financial Record of Godavari and Pravara Canals.	
Bhatodi Tank	29-30

Central Circle.

Ekruk Tank	30-31
Koregaon Tank	
Ashti Tank	
Pathri Tank	
Jamda Canals	31-32
Hartala Tank	32
Mhaswa Tank	32-33
Shahada Channel	33
Lower Panjhra River Works	33-34

	PAGES
Central Circle—contd.	
Krishna Canal	34-36
Rewari Canal	
Upper Man River Works	
Yerla River Irrigation Works	
Chikhli Canal	
Maini Tank	
Southern Circle.	
Gadikeri Tank	36
Gokak Canal	36-37
Muchkundi Tank	37
Dambal Tank	
Medleri Tank	
Madag Tank	38
Asundi Tank	
Dharma Canal	
Mavinkop Tank	39
Statement showing rainfall in Southern Circle	39

SECTION II.

COMPRISING IRRIGATION WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.

General Remarks	41
Table I, showing area irrigated, consolidated land revenue and water rates	41
Table II, showing actual expenditure and receipts on Irrigation Works ..	42-43
DETAILED REPORTS BY LOCAL OFFICERS.	
Northern Circle.	
Khari sluices	44-45
Muwalia Tank	45
Old Tanks	45-46
Deccan Irrigation Circle.	
Khamgaon Tank	46
Bandharas	
Khirdi Sathe Tank	
Bandharas	47
Visapur Tank	47-48
Khuntephal Tank	48
Central Circle.	
Wadshivne Tank	48
Talwada Tank	49
Old works	
Borgaon Dam	50
Sap Nalla	
Southern Circle.	
Second Class Irrigation tanks in Belgaum, Dharwar, Kanara and Ratnagiri Divisions	50

SECTION III.

Special Irrigation Division	51-56
Statement I-E, showing areas irrigated and average discharges and duties of water in regard to irrigation works during 1931-32	58-63
Statement I-F, showing water rates per acre in force during 1931-32 ..	64-68
Statement G, showing areas and water-rate assessments during 1931-32, according to the system of classification adopted in fixing the scale of water-rates	70-81
Government Resolution reviewing the Report	83-84
Map of Deccan and Gujarat	.. At end of Report.

DIAGRAM

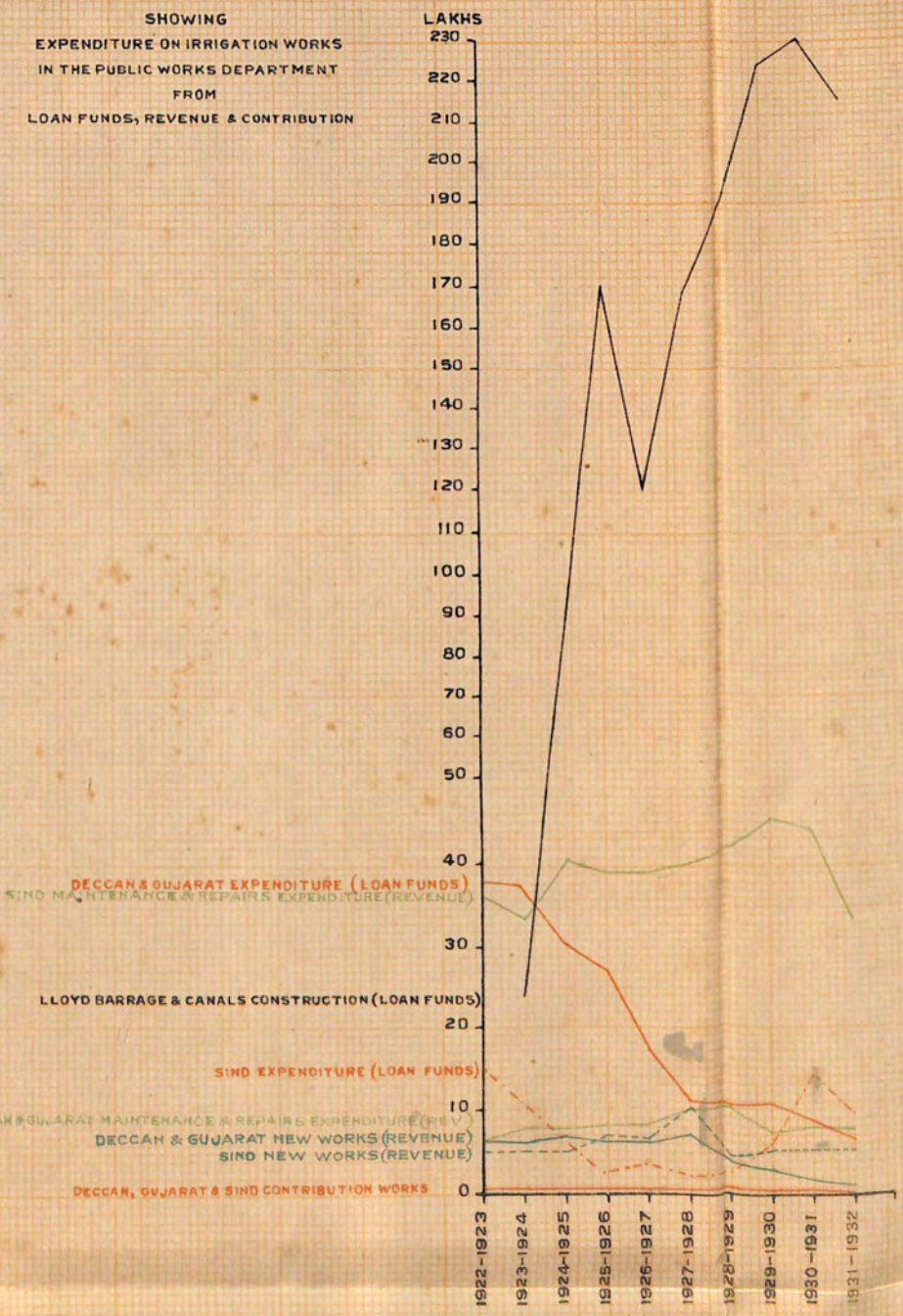
SHOWING

EXPENDITURE ON IRRIGATION WORKS

IN THE PUBLIC WORKS DEPARTMENT

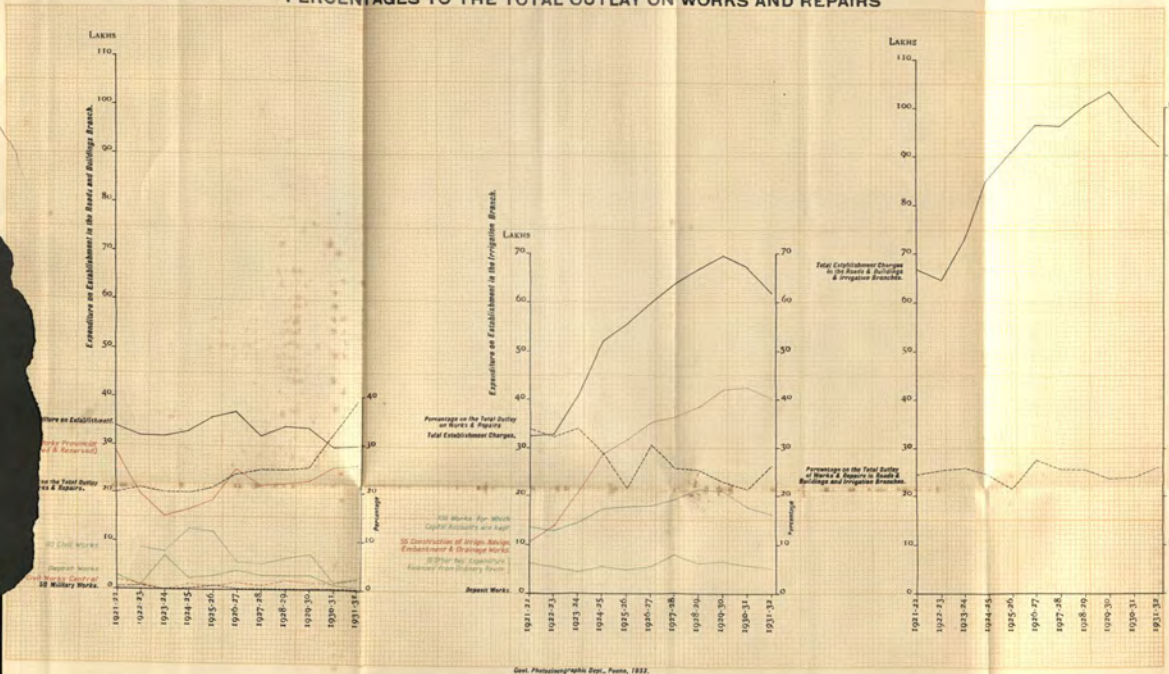
FROM

LOAN FUNDS, REVENUE & CONTRIBUTION



G.P.Z.O. Poona, 1933.

DIAGRAM SHOWING EXPENDITURE
ON ESTABLISHMENT
IN THE
ROADS & BUILDINGS & IRRIGATION BRANCHES
OF THE
PUBLIC WORKS DEPARTMENT
AND
PERCENTAGES TO THE TOTAL OUTLAY ON WORKS AND REPAIRS



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Statement showing expenditure on establishment in the Roads and Buildings and the Irrigation Branches of the P. W. D. from the year 1921-22 to 1931-32 and percentage on the total outlay on works and repairs during that period in both the Branches.

Year.	Expenditure on Establishment in the Roads and Buildings Branch.							Expenditure on Establishment in the Irrigation Branch.
	41—Civil Works—Provincial (Transferred and Reserved).	60—Civil Works.	41—Civil Works—Central.	50—Military Works.	Deposit Works.	Total.	Percentage on the total outlay on works and repairs in the Roads and Buildings Branch.	55—Construction of Irrigation, Navigation, Embankment and Drainage Works.
1	2	3	4	5	6	7	8	9
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.
1921-22 ..	29,06,955	..	1,98,683	45,258	2,84,992	34,35,888	19·26	11,53,734
1922-23 ..	20,14,640	8,34,450	1,78,163	71,481	77,143	31,75,877	20·79	14,20,751
1923-24 ..	15,84,488	8,10,645	67,892	38,560	6,88,354	31,89,939	19·88	21,87,793
1924-25 ..	16,89,892	12,25,632	1,19,721	27,862	2,52,556	33,15,663	19·67	29,10,785
1925-26 ..	18,89,417	12,05,078	1,01,876	69,049	2,58,535	35,23,955	20·66	32,21,647
1926-27 ..	25,30,286	5,97,486	1,68,896	5,882	3,94,389	36,96,939	23·76	35,56,959
1927-28 ..	21,99,448	5,59,107	1,49,132	5,042	2,97,270	32,09,999	24·96	36,98,956
1928-29 ..	22,40,393	6,56,713	2,29,540	2,240	2,56,180	33,85,066	25·03	39,04,670
1929-30 ..	22,45,450	7,33,867	1,56,773	3,638	2,34,897	33,74,625	25·26	42,26,873
1930-31 ..	25,51,711	1,80,139	1,72,163	2,415	85,444	29,91,872	32·35	42,88,966
1931-32 ..	25,93,104	2,32,929	1,22,799	3,182	44,132	29,96,146	38·70	40,37,972

Year.	Expenditure on Establishment in the Irrigation Branch—*contd.*					Total Establishment charges in the Roads and Buildings and Irrigation Branches.	Percentage on the total outlay of works and repairs in Roads and Buildings and Irrigation Branches.
	XIII—Works for which capital accounts are kept.	15—Other Revenue Expenditure financed from Ordinary Revenues.	Deposit Works.	Total establishment charges.	Percentage on the total outlay on works and repairs in the Irrigation Branch.		
1	10	11	12	13	14	15	16
	Rs.	Rs.	Rs.	Rs.		Rs.	
1921-22 ..	13,85,960	6,68,651	2,770	32,11,115	33·59	66,47,003	24·26
1922-23 ..	13,44,901	5,34,327	1,993	33,01,972	32·22	64,77,849	25·38
1923-24 ..	14,43,222	4,32,013	2,056	40,65,084	33·89	72,55,023	25·87
1924-25 ..	17,37,724	5,26,361	492	51,75,362	28·73	84,91,025	24·35
1925-26 ..	17,99,343	5,19,228	2,681	55,42,899	21·62	90,66,854	21·23
1926-27 ..	18,08,385	5,94,989	3,207	59,63,540	30·56	96,60,479	27·54
1927-28 ..	19,20,773	7,80,312	3,847	64,03,888	26·00	96,13,887	25·64
1928-29 ..	21,35,939	6,16,601	2,750	66,59,960	25·51	1,00,45,026	25·35
1929-30	21,08,302	6,18,312	1,012	69,54,499	23·26	1,03,29,124	23·88
1930-31 ..	18,31,149	5,99,621	1,734	67,21,470	21·60	97,13,342	24·06
1931-32 ..	16,34,011	5,18,627	86	61,90,696	22·40	91,86,842	25·97

NOTE.—The percentage of the establishment charges on the cost of works and repairs in the Irrigation Branch (column 14) is generally higher than that in the Roads and Buildings Branch (column 8). The reason is largely that the establishment charges in the Irrigation Branch include the cost of Special Revenue Establishment employed entirely on "revenue management" work on certain canal systems in Sind and the Deccan which has no connection with the execution of works and repairs, and that these charges also include cost of part of the time of Irrigation establishment spent on revenue management including the *control and distribution of water*, which is debited in the accounts to "revenue management" and not to execution of works and repairs. If these establishment charges debited in the accounts to "revenue management" are deducted from the total cost of establishment in the Irrigation Branch the percentage on the cost of works and repairs will not be so divergent. The increase in the rate per cent. in the R. & B. Branch is mainly due to decrease in outlay on "works" and "repairs". Establishment charges cannot be reduced in the same ratio in which expenditure on works is reduced. A mere overall percentage on expenditure on works is inaccurate.

IRRIGATION ADMINISTRATION REPORT
PART I—DECCAN AND GUJARAT
1931-32

PHYSICAL FEATURES—GENERAL DESCRIPTION OF IRRIGATION.

Irrigation in the Deccan and Gujarat differs materially from that in Sind. Rainfall is available for agricultural operations but is often precarious. Tanks and canals provide irrigation to valuable crops such as sugarcane and are a source of supply to other crops also when the rainfall is deficient or irregular. The old irrigation works consist chiefly of a few small canals and moderately large tanks, some 12,000 smaller tanks mostly in the southern part and in Gujarat, and of about 400 bandharas in Nasik and Khandesh Districts. The tanks have earthen dams and the larger ones irrigate areas up to 1,300 acres, and the smaller ones up to 500 acres, situated immediately below and in the vicinity of the dams. The chief crop irrigated is rice. The bandharas are masonry weirs built across rivers to head up the water to a level sufficient to irrigate lands on the banks of the streams by means of channels taking off from the flanks of the bandharas. The areas irrigated are up to 800 acres and the chief crops are sugarcane, wheat, bajri and gram. From these small beginnings have evolved the magnificent irrigation works which now form such a conspicuous feature in the Deccan and have so successfully fulfilled their beneficent purpose in banishing the famines which formerly devastated this portion of the Province.

2. The irrigation works in the Deccan are fundamentally different from those in Sind, the Punjab, Egypt or Mesopotamia, where wide alluvial plains have been formed by great deltaic rivers in perennial flow. The Bombay Deccan consists of a sloping table-land running eastward from the ridge of the Western Ghats. These form a ridge running parallel to the sea-coast at a distance from it of 50 to 100 miles; precipitous on the western side, they fall away more gradually to the east. The heaviest rainfall occurs on the peak of the ridge, where anything up to 270 inches of rain is recorded in the four monsoon months. The intensity of the rainfall rapidly decreases as we go eastward from the highest ridge, reaching a figure of 20 or 25 inches at a distance of 100 or 150 miles east of the Ghats. The rivers in the Deccan rise in the valleys close to the ridge, flow in an eastward direction, and are dry or practically so for 7 or 8 months of the year. The line of the Ghats, like the ridge of a roof, divides the rainfall into two parts; one the smaller portion falling westward into the Indian Ocean, and the other flowing through long lengths of tortuous rivers to the east and joining the rivers which reach the

sea on the south-eastern coast of the peninsula. These rivers are in flow during the monsoon months only, and if no artificial means of conserving their waters were provided, the whole monsoon rainfall would be wasted so far as the Bombay Deccan is concerned, and would simply flow away to the sea, benefiting but to a small extent the country traversed.

3. The large irrigation systems in the Deccan are all of the same type. Each depends upon a storage lake near the head of one of the river valleys, where sufficient water is collected during the monsoon to supply the country on either side of the river valley below. The water stored during the rains is let out during the dry months of the year in accordance with requirements; and at a point on the river, which may be as far as 50 miles from the main storage lake, a 'pick-up-weir' is constructed across the river-course to divert the water into canals which take off on either side of the weir. In one case only, that of Lake Fife at Khadakwasla near Poona, do the canals take off from the flanks of the dam itself. The canals are always constructed at a considerably flatter slope than that of the river, and consequently are able to diverge from the river itself on each side of the valley; as a rule each canal only irrigates the area between itself and the river.

SECTION I

COMPRISING IRRIGATION WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.

GENERAL REMARKS.

Works in operation.

4. The following list includes all the works in operation (43 in number) :—

Serial Number.	Name of Work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon and 120 acres for the rabi season per cusec.	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.
		Acres			
1	Hathmati and Khari Cut Canals.	24,000	Dependent on local rain.	No storage work. Bokh reservoir, Chandola tank and Wasai reservoir completed.	The catchment of the Hathmati river is hilly, covered partly with forest and that of Khari is undulating ground at its source and then plain ground with cultivated fields. Supply depends upon the flow in the rivers, and the contents of the Bokh reservoir, Chandola tank and Wasai reservoir.
2	Wangroli Tank ..	3,400	Do. ..	Completed ..	The catchment is ordinary plain ground and cultivated fields.
3	Savli Tank ..	3,000	Do. ..	Do. ..	Ordinary catchment on undulating ground.
4	Saiat Tank ..	2,000	Do. ..	Do. ..	Ordinary catchment on flat ground.
5	Tranza Nagrama Tanks.	800	Do. ..	Do. ..	The Tranza tank has no independent catchment. The Nagrama has a catchment of 1·5 sq. miles. Both are fed by the Matar drainage channel which is not reliable as it seldom flows.
6	Futelao Tank ..	800	Do. ..	Do. ..	Hilly catchment
7	Nira Left Bank Canal including Shetphal Tank.	100,000	Reliable ..	Lake Whiting (Lloyd Dam) completed.	Ghat catchment.
8	Nira Right Bank Canal.	180,000	Do. ..	Do. ..	Do.
9	Mhaswad Tank ..	14,000	Dependent on local rain.	Completed ..	Deccan catchment.
10	Mutha Canals including Matoba Tank.	49,000	Reliable ..	Lake Fife completed.	Ghat catchment.
11	Kasurdi Tank ..	40	Dependent on local rain.	Completed ..	Deccan catchment.
12	Shirsuphal Tank ..	1,150	Do. ..	Do ..	Do.
13	Bhadalvadi Tank ..	1,225	Do. ..	Do. ..	Do.

Serial Number.	Name of Work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the mõllsoon and 120 acres for the rabi season per cusec.	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.
		Acres			
14	Godavari Right Bank Canal.	44,000	Reliable ..	Lake Beale completed.	Ghat catchment.
	Godavari Left Bank Canal.	26,000			
15	Girna Left Bank Canal.	9,000	Do. ..	Chankapur Tank completed.	Do.
16	River Kadva Works. Palkhod Canal. Ojhar Tambat Canal. Wadali Canal.	7,680	Do. ..	Waghad Tank completed.	Do.
17	Parsul Tank ..	1,440	Dependent on local rain.	Completed ..	Deccan catchment.
18	Pravara Right Bank Canal.	18,480	Reliable ..	Lake Arthur Hill (Wilson Dam) completed.	Ghat catchment.
	Pravara Left Bank Canal.	64,080			
19	Bhatodi Tank ..	1,461	Dependent on local rain.	Completed ..	Deccan catchment.
20	Ekruk Tank ..	13,070	Do. ..	Do. ..	Do.
21	Koregaon Tank ..	416	Do. ..	Do. ..	Hilly catchment.
22	Ashti Tank ..	3,382	Do. ..	Do. ..	Deccan catchment.
23	Pathri Tank ..	3,094	Do. ..	Do. ..	Hilly catchment.
24	Jamda Canals ..	42,000	Girna river supply not reliable.	Water is issued from the Chankapur Tank when available.	Ghat catchment for a small part and for the rest Deccan catchment.
25	Hartala Tank ..	978	Dependent on local rain.	Completed ..	Deccan catchment.
26	Mhaswa Tank ..	3,256	Do. ..	Do. ..	Do.
27	Shahada Channel ..	2,000	Reliable ..	No storage work ..	Hilly catchment. Supply is perennial.
28	Lower Panjhra River Works.	8,173	Panjhra river supply not reliable.	Mukti Tank completed.	Ghat catchment for one part and Deccan catchment for the rest.
29	Krishna Canal	6,412	Reliable ..	Proposed ..	Ghat catchment
30	Rewari Canal ..	439	Dependent on local rain.	No storage work ..	Deccan catchment.
31	Upper Man River Works.	373	Do. ..	Pingli Tank completed.	Do.
32	Yerla River Irrigation Works.	1,182	Do. ..	Nehr Tank completed.	Do.
33	Chikhli Canal ..	358	Do. ..	No storage work	Do.

Serial Number.	Name of Work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon and 120 acres for the rabi season per cusec.	Whether supply is reliable or dependent on local rain	Whether storage works completed or proposed.	Remarks.
		Acres.			
34	Maini Tank ..	455	Dependent on local rain.	Completed ..	Deccan catchment.
35	Gadikeri Tank ..	416	Do. ..	Do. ..	Do.
36	Gokak Canal ..	17,627	Reliable ..	Do. ..	Ghat catchment.
37	Muchkundi Tank ..	750	Dependent on local rain.	Do. ..	Deccan catchment.
38	Dambal Tank ..	531	Do. ..	Do. ..	Do.
39	Medleri Tank ..	231	Do. ..	Do. ..	Do.
40	Madag Tank ..	1,418	Do. ..	Do. ..	Ghat and Forest catchment.
41	Asundi Tank ..	303	Do. ..	Do.	Deccan catchment.
42	Dharma Canal ..	For monsoon season 6,580 acres. For rabi nil.	Do. ..	No storage work. The canal takes off from the river itself.	Forest catchment.
43	Mavinkop Tank ..	617	Do. ..	Completed ..	Do.

Ekruk tank, Gadikeri tank, Mavinkop tank and Shahada channel are the only productive works and the rest are unproductive.

5. The interest account for the year was as follows :—

	Productive Works.	Unproductive Works.	Total.
	Rs.	Rs.	Rs.
Total interest charges during 1931-32 ..	46,624	42,36,162	42,82,786
Net revenue realised during 1931-32 ..	1,20,526	2,25,311	3,45,837

Net loss, i.e. difference between interest and net revenue—Rs. 39,36,949.

6. The financial results of the year by main heads were as under :—

	Area irrigated.	Revenue realised.			Working expenses.	Net revenue.
		Direct receipts.	Share of land revenue.	Total.		
	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.
Productive	6,178	1,36,335	10,489	1,46,824	26,298	1 20,52
Unproductive	200,973	17,19,042	15,253	17,34,295	15,08,984	2,25,311
Total ..	*207,151	18,55,377	25,742	18,81,119	15,35,282	3,45,837

* Inclusive of 8,646 acres under consolidated assessment.

The gross revenue and the net revenue show a decrease of Rs. 8,22,327 and Rs. 7,37,150 respectively, as compared with the figures for the previous year.

Area irrigated, revenue, etc.

7. The figures of area irrigated, revenue assessed and realised and working expenses, as compared with those of the previous three years are given below :—

Year.	Area irrigated.*	Revenue.		Working expenses.
		Assessment.	Realisations.	
	Acres.	Rs.	Rs.	Rs.
1928–29	231,544	31,59,294	32,97,763	17,99,486
1929–30	246,036	31,63,392	30,29,352	17,13,434
1930–31	228,705	27,67,176	27,03,446	16,20,459
Average ..	235,428	30,29,954	30,10,187	17,11,126
1931-32	207,151	24,22,599	18,81,119	15,35,282

* Inclusive of the area under consolidated water and land assessment.

8. The gross area under command is 1,799,000 acres. The area irrigable at present is 623,000 acres.

9. The state of Revenue collections was as follows :—

		Rs.
Balance of demands unrealised at the commencement of the year		21,86,915
Demands of the year :—	Rs.	
Rabi, 1930–31 ..	3,36,307	
Kharif, 1931–32 ..	16,44,746	
Miscellaneous receipts ..	4,33,558	
		24,14,611
Total ..		46,01,526
Deduct—		
Remissions		1,26,202
Net Total ..		44,75,324
Amount unrealised at the close of the year ..		25,93,700
	Rs.	Rs.
Actual receipts of the year ..	18,81,624	
Add—		
Share of land revenue ..	25,742	
	—	19,07,366
Deduct—		
Refunds of revenue		26,247
Revenue realised		18,81,119

The remissions and refunds together amounted to Rs. 1,52,449 Unrealised irrigation revenue at the close of the year amounted to Rs. 25,93,700 which is made up as follows :—

	Rs.
Ekruk Tank	22,385
Hathmati and Khari Cut Canals	1,18,212
Krishna Canal	85,495
Ashti Tank	25,608
Mutha Canals and Matoba Tank	3,13,274
Gokak Canal	33,835
Mhaswad Tank	33,916
Nira Left Bank Canal and Shetphal Tank ..	6,41,044
Kadwa River Works	47,004
Chankapur Tank—Girna Left Bank Canal ..	49,860
Godavari Canals	4,57,830
Nira Right Bank Canal	2,22,196
Pravara River Works	4,83,306
Other Works	59,735
Total ..	25,93,700

Working expenses.

10. The working expenses of the year amounted to Rs. 15,35,282 against Rs. 16,20,459 of the previous year. The following table compares the charges under the principal heads with those of the previous three years :—

	1928-29.	1929-30.	1930-31.	1931-32.
	Rs.	Rs.	Rs.	Rs.
Works	34,267	36,036	43,302	11,619
Repairs	5,64,625	5,22,663	5,24,613	5,31,321
Establishment	10,76,789	10,72,593	9,79,960	9,38,363
Tools and Plant	18,383	13,053	9,799	8,567
Total in the Public Works Department ..	16,94,064	16,44,345	15,57,674	14,89,870
Collection charges	99,420	63,402	57,111	39,988
Indirect charges	6,002	5,687	5,674	5,424
Total working expenses ..	17,99,486	17,13,434	16,20,459	15,35,282

Details of working expenses.

11. The following table gives the details of working expenses for some of the principal works :—

Name of work.	Average incidence of water rate per acre.	Cost of measurement.		Working expenses in the P. W. Department.	
		Total cost.	Per acre.	Per mile of main canal.	Per acre irrigated.
	Rs.	Rs.	Rs. a. p.	Rs.	Rs.
Nira Left Bank Canal and Shetphal Tank	10·25	1,169	0 0 6	2,926	6·56
Pravara Canals	16·32	501	0 0 8	1,991	9·93
Girna Left Bank Canal	7·65	373	0 1 5	2,966	13·1
Godavari Canals	15·8	229	0 0 5	1,982	13·35
Mutha Canals and Matoba Tank ..	14·11	1,273	0 1 6	980	6·35
Kadwa River Works	9·85	140	0 0 8	1,144	8·21
Mhaswad Tank	3·94	89	0 0 4	..	5·46
Nira Right Bank Canal	4·14	508	0 0 5	1,449	11·69
Krishna Canal	17·16	656	0 2 1	548	3·87
Yerla River Irrigation Works ..	4·77	508	0 2 2	426	3·76
Upper Man River Works ..	3·55	241	0 2 5	449	4·92
Jamda Canals	4·13	194	0 1 6	325	6·08
Ekruk Tank	5·51	330	0 1 4	457	5·62
Ashti Tank	5·13	130	0 0 8	449	3·83
Maini Tank	4·22	192	0 2 2	615	4·08
Gokak Canal	7·84	500	0 1 4	535	4·49
Dharma Canal	5·84	266	0 9 8	69	0·33

Gross assessed revenue.

12. The gross assessed revenue, direct and indirect, amounted to Rs. 24,22,599 against Rs. 27,67,176 of the previous year. The details of the gross assessment are as under :—

	Direct revenue.			Indirect revenue.	Total.
	Water rates.	Other receipts.	Total.		
	Rs.	Rs.	Rs.	Rs.	Rs.
Productive	24,086	1,35,002	1,59,088	10,489	1,69,577
Unproductive	19,37,294	2,98,556	22,35,850	17,172	22,53,022
Total ..	19,61,380	4,33,558	23,94,938	27,661	24,22,599

13. The net assessed revenue of the year, after deducting working expenses (Rs. 15,35,282), amounted to Rs. 8,87,317 against Rs. 11,46,717 of the previous year.

14. The following table gives the percentage return earned during the year on capital outlay on the principal works in operation :—

Name of work.	Total capital outlay (direct and indirect).	Gross receipts (direct and indirect).	Working expenses (direct and indirect).	Net revenue.	Percentage return on capital outlay.
	Rs.	Rs.	Rs.	Rs.	Rs.
Ekruk Tank	13,40,386	1,32,839	21,959	1,10,880	8·27
Hathmati and Khari Cut Canals ..	13,18,729	94,305	33,248	61,057	4·63
Nira Left Bank Canal and Shetphal Tank.	1,32,08,119*	4,21,163	3,68,612	52,551	0·40
Nira Right Bank Canal ..	4,01,75,874	58,371	2,40,599	—1,82,228	..
Mhaswad Tank	20,96,016	27,622	24,012	3,610	0·17
Mutha Canals and Matoba Tank ..	67,40,417	3,19,628	89,407	2,30,221	3·42
Godavari Canals	1,03,93,918	2,12,813	2,46,267	—33,454	..
Chankapur Tank—Girna Left Bank Canal.	20,56,431	19,263	55,754	—36,491	..
Kadwa River Works	10,35,876	24,952	28,102	—3,150	..
Pravara River Works	1,50,07,048	2,70,372	2,35,183	35,189	0·23
Lower Panjhra River Works ..	4,68,621	26,386	16,031	10,355	2·21
Krishna Canal	9,49,807	59,429	19,317	40,112	4·22
Gokak Canal	14,66,673	91,100	29,963	61,137	4·17

*Inclusive of proportionate expenditure on the old Bhatgar Dam and the new Lloyd Dam.

15. The average water rates per acre of land actually irrigated were :—

	Rs.
Productive works	5·54
Unproductive works	9·98

16. The water rate assessments and other receipts compare with those of the previous year as under :—

	1930-31.	1931-32.
	Rs.	Rs.
Water rates	23,22,010	19,61,380
Other receipts—		
Plantations	8,579	6,669
Water power	14,313	14,353
Miscellaneous	3,98,464	4,12,536
Total ..	4,21,356	4,33,558
Share of land revenue ..	23,810	27,661
Grand Total ..	27,67,176	24,22,599

17. The principal crop acreages irrigated during 1930-31 and 1931-32 are given below :—

Crop acreages.

	1930-31.	1931-32.
	Acres.	Acres.
Gardens and orchards ..	4,951	5,258
Sugarcane	30,102	30,450
Wheat	11,461	12,677
Rice	16,947	17,294
Jowar	48,957	39,821
Bajri	17,302	12,046
Gram, etc.	17,398	18,500
Groundnut	12,151	10,992
Cotton	11,242	9,746
Condiments	6,038	7,457

The total estimated value of crops was Rs. 127·78 lakhs against Rs. 140·46 lakhs of the previous year.

DETAILED REPORTS BY LOCAL OFFICERS.

NORTHERN CIRCLE.

18. The regular monsoon was late. It commenced late at the beginning of July and lasted till the beginning of September, occasional showers continuing till the middle of October. The rainfall during the year was favourable for rice crops, having been above the normal and well distributed. It filled the storage tanks to their full supply levels and ensured a good flow in the rivers throughout the kharif and rabi seasons. The rainfall gauged at Ahmedabad and Prantij was 39·17 and 43·15 inches respectively as compared with 30·58 and 24·49 inches, the average of the last 3 years. At Bareja, the central place of irrigation on the Khari Cut Canal, the rainfall was 31·86 inches as compared with 24·26 inches, the average of the last 3 years, while at Himatnagar, the head works of the Hathmati Canal, it was 37·81 inches against 27·39 inches, the average of the previous three years.

19. The principal irrigation works in operation in this Circle are (1) the Hathmati and Khari Cut Canals, (2) Wangroli tank, (3) Tranza, Nagrama tanks, (4) Savli tank, (5) Saiat tank and (6) Futelao tank. No. (1) is a work without storage and depends solely on rainfall. The work are financially unproductive, the revenue derived therefrom being in most years insufficient to cover their working expenses.

AHMEDABAD AND KAIRA AND PANCH MAHALS DIVISIONS.

Hathmati and Khari Cut Canals.

20. This is the most important canal system in Gujarat. The Hathmati Canal irrigates a tract of land lying between the Sabarmati and Khari rivers and is designed, in addition to irrigating its own area to pass surplus water when available partly into the Bokh reservoir and partly

into the Khari river. The Bokh reservoir has no direct irrigation under it but acts as a storage work for the Khari Cut Canal. Lower down on the Khari are two small irrigation systems which utilise the natural flow of the river and also any surplus water made available from the Hathmati Canal, the Khari water being abstracted for direct irrigation at the so-called " Khari Sluices " and the surplus water from Hathmati diverted through an artificial cut called the Khari Cut into a natural channel which in its turn supplies a system of distributaries, several small tanks and the large Chandola tank near Ahmedabad. The system was first opened in 1873–74 and has cost more than Rs. 13 lakhs.

21. The Hathmati river was in flood for the first time on 3rd July, the depth of flow over the weir being only 0·3 foot and lasting for two days. There were 7 subsequent floods during the season, the greatest height of overflow over the weir crest being 1·8 feet on 25th August when the discharge was 8,953 cusecs. Out of 175 cusecs, the average daily discharge of the canal at its head during the kharif season, only 66 cusecs were utilised for irrigation and the balance was let down into the Bokh reservoir and the Bhujwa channel for irrigation under the Khari Cut Canal. An average daily discharge of 69 cusecs was obtained from the river in the rabi season.

22. The Khari river was in flood at Raipur for the first time on 13th August. There were 3 subsequent floods in the river, on 18th and 24th August and 21st September. The maximum height of water over the weir at Raipur was 9 feet on 18th August when the discharge was 2,683 cusecs. The Khari Cut Canal was opened on 22nd August and was allowed to flow till 14th November. The tanks and reservoirs under this system were filled by the middle of September. There was no flow in the canal in the rabi season, but 388 acres were irrigated from the supply available in the tanks fed by the canal.

23. The area irrigated, revenue assessed and the working expenses during the year under the Hathmati and Khari Cut Canals as compared with the average of the preceding three years are given below :—

	Kharif.		Rabi.		Total.		Working expenses.
	Area irrigated.	Assessment.	Area irrigated.	Assessment.	Area irrigated.	Assessment.	
	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Rs.
Average	7,704	37,559	1,596	4,401	9,300	41,960	39,526
1931-32	11,558	69,222	4,026	11,691	15,584	80,913	33,248

24. The remissions sanctioned during the year amounted to Rs. 795. The gross revenue realised from all sources amounted to Rs. 93,334 while the working expenses were Rs. 33,248. This gives a return of 4·5 per cent., on the total capital outlay exclusive of interest. If the interest charges for the year, amounting to Rs. 41,413, are taken into account the result is a return of 1·4 per cent., on the capital cost of the Hathmati and the Khari Cut Canals combined.

First Class Irrigation Tanks in Gujarat.

25. The five first class tanks mentioned below were constructed between the years 1904 and 1917 at an aggregate cost of Rs. 11 lakhs. They rarely yield any return, as there is not much demand on them in years of good rainfall, while in years of scarcity the supply of water in the tanks themselves is ordinarily deficient. The Futelao tank is in the Panch Mahals Collectorate while the others are in the Kaira Collectorate.

26. The area irrigated, irrigation assessment and the working expenses on the tanks during the year as compared with the average of the previous three years are given below :—

Name of tank.	Year.	Kharif.		Rabi.		Total.		Working expenses.
1	2	3	4	5	6	7	8	9
		Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Rs.
Wangroli	Average ..	1,271	6,260	159	658	1,430	6,918	7,182
	1931-32 ..	1,093	5,334	226	941	1,319	6,275	7,242
Savli	Average ..	1,629	7,463	..	..	1,629	7,463	6,811
	1931-32 ..	1,541	7,740	2	10	1,543	7,750	6,010
Saiat	Average ..	738	2,855	87	356	825	3,211	5,015
	1931-32 ..	470	1,966	48	186	518	2,152	4,100
Tranza Nagrama ..	Average ..	..	..	..	..	..	..	2,225
	1931-32 ..	19	68	2	5	21	73	2,068
Futelao	Average ..	13	100	58	185	71	285	1,765
	1931-32 ..	..	..	30	91	30	91	1,366

Wangroli Tank.

27. The rainfall gauged during the year at the site of the tank was 46·43 inches against 33·43 inches, the average of the previous three years. The tank filled to its full supply level and water was utilised for irrigating both kharif and rabi crops, mainly rice, wheat and gram. The surplus water of the previous year was utilised in irrigating hot weather crops. The miscellaneous revenue during the year amounted to Rs. 1,052 against Rs. 1,154 of the previous year. The decrease in revenue was due to less tank bed cultivation.

Savli Tank.

28. The rainfall gauged at the site of the tank was 39·11 inches against 30·68 inches, the average of the previous three years. The tank filled to its full supply level and the replenishment was utilised for irrigating kharif crops, mainly rice. The miscellaneous revenue realised during the year was Rs. 1,175 against Rs. 1,503 of the previous year. The decrease was due to less tank bed cultivation.

SAIAT TANK.

29. The rainfall gauged at the site of the tank was 37·34 inches against 37·63 inches, the average of the past three years. The tank filled to its full supply level and the water was utilised for irrigating both kharif and rabi crops, mainly rice and gram. The miscellaneous revenue realised during the year amounted to Rs. 893 against Rs. 938 of the previous year.

TRANZA-NAGRAMA TANKS.

30. The rainfall gauged at Nagrama was 32·61 inches and it was about the same at Tranza also. The average rainfall for the past three years at the tanks was 25·04 inches. The Tranza tank was partially filled and the supply available was utilised for irrigating both kharif and rabi crops. The Nagrama tank was empty during the year. The miscellaneous revenue realised during the year on the tanks amounted to Rs. 816 against Rs. 85 of the previous year.

FUTELAO TANK.

31. The rainfall gauged during the year was 31·85 inches against 27·63 inches, the average of the past 3 years. The tank filled to about 3/4th of its full capacity. Owing to good rainfall there was no demand for water in the kharif season. The supply was utilised for rabi irrigation, which was limited. The miscellaneous revenue realised during the year was Rs. 81 against Rs. 69 of the previous year.

32. The percentage returns from the working of these tanks during the year were as under :—

Name of tank.	Gross assessment.	Gross realisations.	Working expenses.	Net revenue.	Capital outlay direct and indirect to end of 1931-32.	Percentage return.
	Rs.	Rs.	Rs.	Rs.	Rs.	
Wangroli	7,327	11,608	7,242	4,366	2,93,295	1·49
Savli	8,925	10,998	6,010	4,988	2,55,210	1·95
Saiat	3,045	3,506	4,100	— 594	1,84,029	— ·32
Tranza Nagrama ..	889	959	2,068	—1,109	2,80,635	— ·39
Futelao	172	236	1,368	—1,132	1,16,461	— ·97

IRRIGATION DEVELOPMENT AND RESEARCH CIRCLE.

33. Up to the end of the year 1927 the areas served by the rivers Nira, Godavari, Mutha, Pravara and Kadwa were grouped together under one Circle of superintendence called the Deccan Irrigarion Circle. The work in this Circle had been for some time past much heavier than could be properly handled by one officer. Moreover, irrigation in the Deccan had reached a critical stage and its advance depended upon a satisfactory solution of the many difficult and complex problems which arise from time

to time. In order to deal adequately with the scientific side of irrigational problems and practice a new Circle of superintendence, called the Irrigation Development and Research Circle, was accordingly created on 1st December 1927, and the Nira Left Bank Canal and Special Irrigation Divisions were placed under it. The work done by the latter Division is described under section III of this Report.

NIRA LEFT BANK CANAL DIVISION.

Nira Left Bank Canal and Shetphal Tank.

34. This canal which came into operation in 1885-86 is one of the pioneer irrigation works in the Deccan and protects a tract with a very precarious rainfall in the Poona District. The original scheme consisted of (*a*) a ghat-fed storage tank at Bhatgar (Lake Whiting) about 32 miles south of Poona on the Yelwandi river impounding 5,300 million cubic feet of water, (*b*) a pick-up weir at Vir on the Nira river about 17 miles downstream from Bhatgar, (*c*) a canal about 100 miles long, irrigating about 80,000 acres annually and (*d*) a tank at the tail of the canal with an effective capacity of 592 million cubic feet used for storing a portion of the surplus monsoon discharge. The original masonry dam 127 feet high is now replaced by the higher Lloyd Dam referred to in paragraph 42 later on. The canal commands a gross area of 201,000 acres while the area commanded by the Shetphal Tank is 23,500 acres. The canal had originally a capacity of 456 cusecs and is now being remodelled to carry a discharge of 720 cusecs. The scheme is the most remunerative of the larger protective irrigation works in the Deccan.

35. The rainfall at Bhatgar during the year was 51·34 inches as compared with 43·73 inches, the average for the previous 30 years. The average rainfall at the several gauging stations along the canal was 26·36 inches as compared with 18·7 inches, the average of the past 30 years. The rainfall during the year was above the average in the catchment area as well as in the canal tract. It was also good and timely in the rabi season. The level of water in the Shetphal tank reached its lowest, reading 26·2′ on the gauge on 2nd June, giving a storage of 253·56 million cubic feet. Replenishment from the canal was commenced on 3rd June and the water in the tank reached its highest level of 37 feet on 27th July, the contents then being 572·53 million cubic feet.

36. The following table gives the results of irrigation, revenue, etc. during the year as compared with the average of the previous three years :—

Area irrigated.		Irrigation assessment.		Gross assessment.		Rainfall.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
56,230	68,636	5,76,341	8,63,603	5,84,382	8,72,065	27·45	22·05

37. The area of sugarcane and other perennial crops, together with the short-termed overlapped cane, was 9,398 acres against 11,255 acres of the preceding year. This decrease of 1,857 acres was mainly due to decrease in the area of short-term overlap. The total area irrigated was 56,230 acres against 65,943 acres in the last year. The main reasons for this decrease in the irrigated area were good and timely rainfall and consequent less demand for irrigation water and the slump in market prices of all commodities. The area under perennial blocks during the year was 18,310 acres on the Nira Left Bank Canal and 2,158 acres on the Shetphal Tank against 19,007 and 1,935 acres, respectively, of the preceding year. The area of two-seasonal blocks was 20,097 acres on the Nira Left Bank Canal and 1,245 acres on the Shetphal Tank against 22,916 and 1,677 acres, respectively, of the preceding year. The decrease in areas of perennial and two-seasonal blocks was due to the reasons stated above. The decrease in revenue was due to reduction in water rates, general depression and less irrigation of seasonal crops due to timely rainfall. The refunds of revenue granted during the year and remissions sanctioned amounted to Rs. 328 and Rs. 56,627 respectively. The cost of establishment employed for measuring 39,786 acres amounted to 6 pies per acre, against 7 pies per acre in the preceding year.

Nira Valley Development Project.

38. This project was designed for the complete development of irrigation in the Nira Valley and provided for widening and remodelling the Nira Left Bank Canal to irrigate an additional area of 19,000 acres and the construction of a new dam at Vir to supplement the storage of 24,000 million cubic feet impounded by the Lloyd Dam at Bhatgar referred to later on. The construction of the Vir Dam, estimated to cost about a crore of rupees, has however now been abandoned as being unnecessary. It is considered that by economical distribution of water the storage at Bhatgar will be sufficient to meet all irrigation requirements in the Nira valley, both on the old Nira Left Bank Canal and the new Right Bank Canal referred to later on. The remodelling of the Nira Left Bank Canal, which was started in 1925-26, has made considerable progress. During the year under report, several works were carried out, the total expenditure incurred being Rs. 61,028. The remodelling will be completed by 1936-37.

DECCAN IRRIGATION CIRCLE.

39. The rainfall in the canal areas was above the normal but was not evenly distributed. The fall during the rabi season was excessive. On the Nira Right Bank Canal the kharif rains were below normal while on the Pravara and Godavari Canals they were much in excess of normal. In some places, the kharif rains were so heavy that resowing had to be done on account of defective germination. On the Pravara and Godavari Canals, the cotton crops suffered due to excessive moisture. On the whole, the kharif crops were well established but the heavy rain in September and October did some damage to the matured crops. The rabi crops were sown in October but continuous rain, lasting till the end

of January, was not favourable for them. The rainfall during the year measured at Poona was 26·2", at Kopargaon 24·3", at Belapur 41·3", and at Malsiras 27·8".

40. The total area irrigated in this Circle during the year was 90,496 acres, against 101,821 acres of the previous year, and the gross revenue amounted to Rs. 12·7 lakhs against Rs. 14·44 lakhs of the last year.

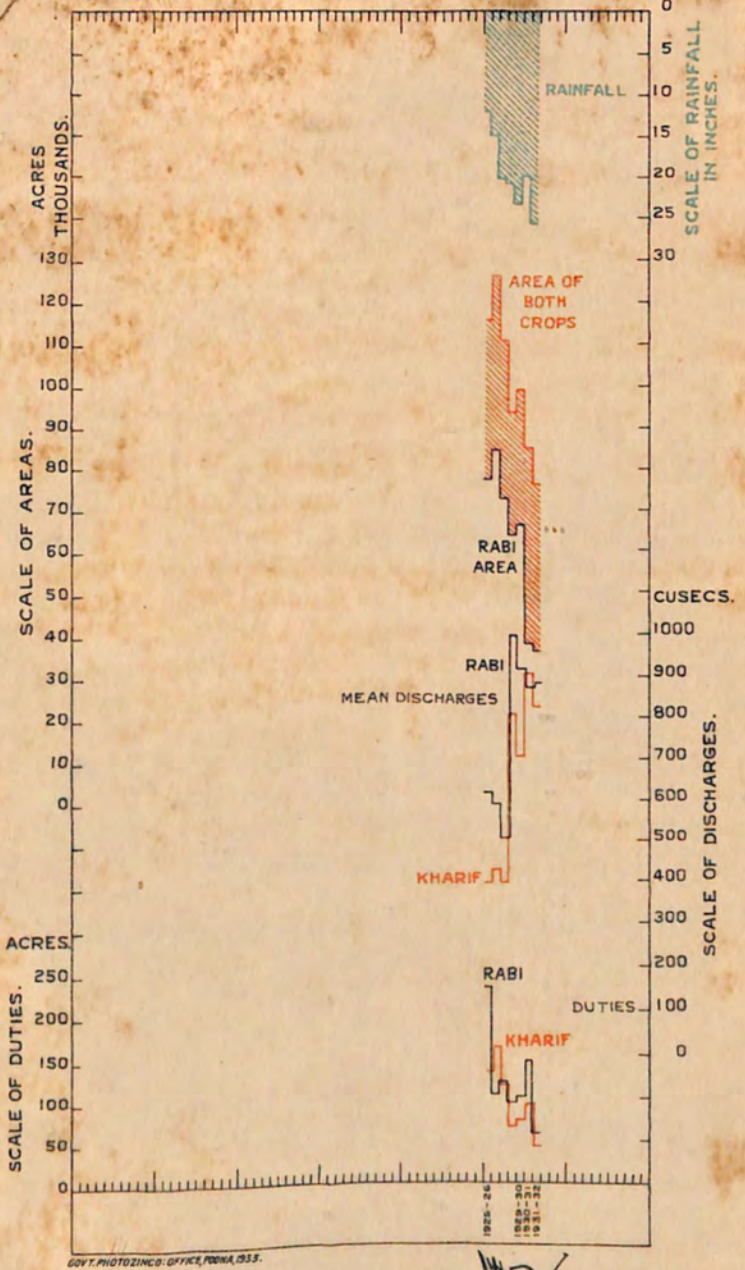
MUTHA CANALS AND MALSIRAS DIVISIONS.

Lloyd Dam and Nira Right Bank Canal.

41. The Nira Right Bank Canal is the largest canal in the Deccan. The original estimate of the project framed in 1910 provided for (*i*) raising the dam at Bhatgar by 60 feet so as to increase its storage capacity from 5,300 million cubic feet to 24,000 million cubic feet, (*ii*) a canal 109 miles long on the right bank of the Nira river, having a capacity at head of 1,500 cusecs, and (*iii*) widening the existing Nira Left Bank Canal so as to increase its discharge from 450 to 760 cusecs. The total cost was estimated at about Rs. 258 lakhs and the area to be irrigated annually at 190,000 acres. The project was submitted to the Government of India in May 1911, sanctioned by the Secretary of State in June 1912 and the work was started the same year. Before taking in hand the work of raising the Bhatgar Dam, a thorough investigation was made into its design and estimates with the result that it was decided on technical grounds to abandon the original proposal for raising the dam and to construct an entirely new structure. Owing to this change and to the unprecedented rise in the cost of labour and materials which took place from about the year 1916, in consequence of the Great War, a revised estimate was framed in 1920 amounting to Rs. 491 lakhs and submitted to the Government of India in September 1921. The revised project provided for (*i*) a new dam at Bhatgar to increase the storage from 5,300 million cubic feet to 24,000 million cubic feet, (*ii*) a canal on the right bank of the Nira river 106½ miles long and (*iii*) the expenditure of Rs. 3¾ lakhs already incurred on widening the Nira Left Bank Canal. It was anticipated that 132,000 acres would be irrigated annually and the gross revenue would amount to Rs. 15,22,000 and the net revenue to Rs. 11,92,000, giving a return of 2·4 per cent. on the capital outlay. The revised project was sanctioned by the Secretary of State in June 1922.

42. The Lloyd Dam at Bhatgar, 190 feet high, 5,333 feet long including the waste weir (4,266 feet long excluding the waste weir), and 124 feet wide at the base, was completed in 1928 at a cost of Rs. 172 lakhs. It is one of the largest in the world and contains 21½ million cubic feet of masonry. It supplies water both to the old Nira Left Bank Canal and the new Nira Right Bank Canal. The lake formed by the Dam has a length of 17 miles at full supply level and a storage capacity of 24,000 million cubic feet. The catchment area is 128 square miles and the annual rainfall in the catchment varies from 250 inches in the Ghats to 40 inches at Bhatgar. In addition to the sluices for letting out water for irrigation, there are 81 waste weir-gates which control and regulate the flood level in the lake.

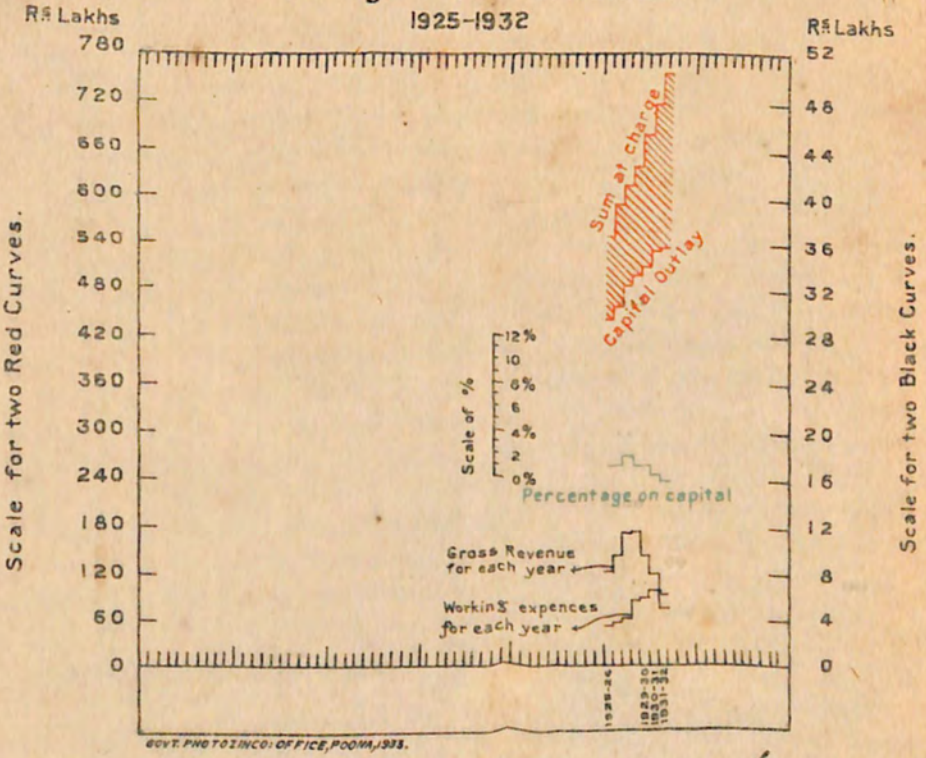
WORKING RECORD
FOR
NIRA RIGHT & LEFT BANK CANALS
1925 - 1932.



GOVT. PHOTOZINCO: OFFICE, POONA, 1933.

Executive Engineer,
Malsiras Division.

FINANCIAL RECORD
FOR
Nira Right & Left Bank Canals.
1925-1932



GOVT. PHOTOZINCO: OFFICE, POONA, 1933.

Executive Engineer
Malsiras Division.

43. Practically all deep cutting and high banks of the Nira Right Bank Canal have been completed. The progress on branches and distributaries is satisfactory. Water was first issued from the canal for rabi crops in 1924–25. The canal commands lands in the Satara and Sholapur Districts and in Phaltan State and ends near Mohod in Sholapur District, the total length being about 106½ miles. The designed discharges of the canal at head and at tail (take off of Branch No. 3) are 1,500 and 414 cusecs respectively, the full supply depths being 8 and 6·5 feet respectively. The culturable area commanded by the scheme is 448,000 acres of which 132,000 acres will be irrigated annually when the canal is fully developed. The distribution system is being constructed on up-to-date principles and the latest types of measuring devices are being provided at the distributary heads and also at frequent intervals on the channels. The whole perennial area under the canal has been carefully surveyed and soil classification carried out before designing the channels, while areas unsuitable for perennial crops have been determined and indicated on maps.

44. On 1st April, the level of water in Lake Whiting was 118·75 feet above the sill of the sluices, the corresponding contents being 15,333 million cubic feet. The lowest level of 102·35 feet was reached on 1st July, the contents then being 10,317 million cubic feet. The lake filled to its full supply level of 143 feet on 10th September and was maintained at that level till 17th October when the draw-off for irrigation commenced. On 31st March, the level was 121·8 feet above the sill, the corresponding contents being 16,345 million cubic feet. The run-off from the catchment of the lake (128 square miles) amounted to 40,486 million cubic feet. The rainfall gauged at Bhatgar during the year was 51·34 inches, while the rainfall in the canal tract averaged 24·97 inches and was generally satisfactory. From September onwards it was timely with the result that there was less demand for irrigation water.

45. The following table gives the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
20,209	16,403	83,829	1,22,746	90,621	1,30,213

Working expenses.		Realisations.		Rainfall.	
1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
2,40,599	2,44,658	58,371	1,14 779	24·97	22·24

46. The increase in the area irrigated was due to development of irrigation. The fall in revenue was due to the prevailing depressed conditions and the grant of concessional half-rates for crops irrigated during the rabi season. The area under sugarcane during the year was 847 acres and the area of two-seasonal or rabi leases was 14,358 acres. The area of perennial blocks sanctioned and irrigated during the year was 2,058 acres as against 662 acres in the previous year. The remissions sanctioned during the year amounted to Rs. 50 and refunds to Rs. 2,522. The cost of the measuring establishment amounted to Rs. 508, which gives a rate of about 5 pies per acre against 11 pies per acre in the previous year. The expenditure incurred on maintenance and repairs during the year amounted to Rs. 96,558, that on extensions and improvements being Rs. 1,651.

MALSIRAS DIVISION.

MHASWAD TANK.

47. This irrigation tank is formed by an earthen dam across the Man river, 9,000 feet long and 80 feet high at its highest point. It has a storage capacity of 2,602 million cubic feet and irrigates lands in Sholapur District, though it is situated on the eastern border of Satara District. Though the capacity of the tank is considerable, the supply is not reliable owing to the precarious nature of the rainfall in its catchment. The designed discharges of the two Mhaswad canals at head are 180·7 and 176·93 cusecs with the full supply depths of 4 and 3 feet respectively. It is intended to utilise the discharge available from these canals to supplement the discharge at the tail of the Nira Right Bank Canal (Branch No. 3) when it is ready to take it. The Mhaswad canal system will then cease to appear as a separate entity and will be merged into the Nira Right Bank Canal system.

48. On 1st April, the level of water in the tank was 16·3 feet above the sill, the corresponding contents being 1,425 million cubic feet. Before the commencement of the rabi season, the level rose to its full height of 24 feet above the sill of the outlet, the contents being 2,601 million cubic feet and the waste weir overflowed from 5th October. On 31st March, the level was 18·75 feet, the contents then being 1,763 million cubic feet. The average rainfall in the catchment of the tank (480 square miles) was 21·61 inches and the run-off amounted to 5,667 million cubic feet. The average rainfall in the canal tract was 20·41 inches.

49. The following table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
4,276	5,495	16,896	43,384	23,736	51,244

Working expenses.		Realisations.		Rainfall.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
24,012	19,661	27,622	45,333	20·41	21·61

50. The decrease in the area irrigated and the consequent decrease in revenue was due to sufficient and timely rainfall during the monsoon and rabi seasons which resulted in less demand for canal water. The area under sugarcane on seasonal passes was 60 acres. The refunds sanctioned during the year amounted to Rs. 607. The cost of measuring establishment was 4 pies per acre.

MUTHA CANALS DIVISION.

Mutha Canals including Matoba Tank.

51. This system came into operation in 1874-75. The canals were constructed at a cost of about Rs. 65½ lakhs with a large Ghat-fed storage reservoir (Lake Fife) on the Mutha river at Khadakwasla about 12 miles from Poona. The dam is of masonry 107 feet high, spanning the valley of the Mutha river, and the lake has a very reliable catchment. The lake is the source of supply of drinking water for Poona as well as for irrigation. The system comprises two canals, the Mutha Right and the Left Bank, 70 and 18 miles long, respectively. The maximum designed discharges of the two canals at head are 412 and 38·5 cusecs, respectively. The Matoba Tank is a tail tank receiving its supply from the Right Bank Canal during the monsoon months. The Mutha Canals, particularly the Right Bank Canal, play a very important part in the welfare of Poona City and the surrounding country. They supply the Cantonment and the City with drinking water and have, besides irrigating ordinary crops, fostered the cultivation of fruit, vegetables, fodder and sugarcane within easy reach of this large city and important Military station. The supply in Lake Fife is however insufficient to meet the increasing demands on account of water supply to Poona and cultivation on the two canals and a project for increasing the storage and for remodelling and extending the Right Bank Canal has been prepared.

52. On 1st April, the level of water in Lake Fife was 19·75 feet above the sill of the canal sluices, the corresponding contents being 1,640 million cubic feet. The lowest level of 5·55 feet was reached on 1st July, the contents then being 390 million cubic feet. The draw-off for irrigation from the storage commenced on 19th November when water was at its full supply level of 34 feet and the contents of the lake were 3,643 million cubic feet. On 31st March, the level of water was 21·95 feet, the corresponding contents being 1,892 million cubic feet. The run-off from the catchment of the lake (196 square miles) amounted to 63,283 million cubic feet. The rainfall gauged at Khadakwasla was

34·94 inches, the rainfall in the canal tract being 20·95 inches. On 1st April, the level of water in Matoba Tank was 10·6 feet, the contents being 15 million cubic feet. The tank was dry from 10th April to 10th July. Replenishment from the Mutha Right Bank Canal commenced from 11th July and the tank reached its full supply level of 29 feet on 4th September, the contents being 221 million cubic feet. On 31st March, the level of water in the tank was 17·54 feet, the contents being 57 million cubic feet.

53. The following table gives the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
13,575	14,284	1,91,499	2,31,075	3,66,174	3,89,778

Working expenses.		Realisations.		Rainfall.	
1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
89,407	1,24,198	3,19,628	3,81,332	20·96	21·14

54. The decrease in the area irrigated was due to the rains being well distributed all over the canal tract which resulted in less demand for canal water for two-seasonal crops. The decrease in revenue was partly due to the decrease in the area irrigated and partly to the reduction in water rates. The cost of the measuring establishment amounted to Rs. 1,273 which gives a rate of 1 anna 6 pies per acre against 1 anna 3 pies in the previous year. The perennial section of the Mutha Right Bank Canal ends at mile 23¾, while the whole length of the Left Bank Canal is perennial. The areas of two seasonal leases under the canals and the Matoba Tank during the year were 578 and 1,679 acres respectively. The quantity of water supplied during the year to the Poona Cantonment was 1,048 million gallons and to the Poona City Municipality 2,486 million gallons, the revenue obtained therefrom being Rs. 41,906 and Rs. 99,457, as compared with Rs. 40,838 and Rs. 90,797 of the previous year. The expenditure incurred on remodelling the first 11 miles of the Mutha Right Bank Canal during the year was Rs. 19,899. The expenditure incurred on extensions and improvements and maintenance and repairs amounted to Rs. 182 and Rs. 34,055 respectively.

KASURDI TANK.

55. This tank, which remained empty till the end of the previous year, received a replenishment on 3rd October. It overflowed for 16 days from 5th October and again from 2nd to 7th November. It dried up on 11th December and again received a replenishment on 14th December. It finally went dry on 5th January. As the supply in the tank was uncertain, two-seasonal leases were not sanctioned.

SHIRSUPHAL TANK.

56. On 1st April, the level of water in the tank was 21·5 feet, the contents being 116 million cubic feet. The lowest level of 18·55 feet was reached on 1st June, the contents then being 76 million cubic feet. The tank reached the highest level of 30·3 feet on 30th November, the contents being 332 million cubic feet. Water was issued for irrigation of rabi and two-seasonal crops. On 31st March, the level of water in the tank was 26·5 feet, the contents being 218 million cubic feet. The area of two-seasonal leases sanctioned during the year was 729 acres.

BHADALWADI TANK.

57. On 1st April, the level of water in the tank was 29·88 feet, the contents being 123 million cubic feet. The lowest level of 25·94 feet was reached on 28th July, the contents being 79 million cubic feet. The tank reached its full supply level of 36 feet on 18th September, the contents then being 216 million cubic feet. It overflowed for 20 days from 18th September. On 31st March, the level in the tank was 29 feet, the contents being 112 million cubic feet. The area under two-seasonal leases sanctioned during the year was 1,093 acres.

58. The sub-joined table gives the results of irrigation, revenue etc. during the year as compared with the average of the past three years :—

Name of tank.	Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Kasurdi	47	83	121	359	1,260	2,432
Shirsuphal	1,041	1,012	5,981	4,963	6,120	5,682
Bhadalwadi	1 300	948	7,649	3,807	7,680	4,311

Name of tank.	Working expenses.		Realisations.		Rainfall.	
	1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Kasurdi	1,167	1,279	1,327	2,395	12·75	20·78
Shirsuphal	3,180	12,445	3,863	5,028	24·32	17·86
Bhadalwadi	4,804	4,237	1,665	4,420	22·79	23·37

59. The decrease in the area irrigated and revenue under the Kasurdi Tank was due to timely rainfall. The increase in the area irrigated and revenue under the Bhadalwadi Tank was due to the irrigators having renewed their two-seasonal leases. The three tanks were maintained and repaired at a cost of Rs. 473, Rs. 1,263 and Rs. 1,398, respectively.

NASIK IRRIGATION DIVISION.

Godavari Canals.

60. This is one of the most important major irrigation works undertaken in the Deccan for the protection of areas liable to famine. It was started in 1907 and completed in 1915–16 at a cost of about one crore of rupees. The system comprises (1) a storage reservoir called Lake Beale on the Darna river, a tributary of the Godavari, about 20 miles from Nasik, (2) a pick-up weir at Nandur Madhmeshwar on the Godavari, 47 miles below the Darna Dam, which impounds the water let down from the Dam for distribution to the canals and (3) two canals, the Right Bank Canal, 69 miles long, which serves the northern tracts of Ahmednagar District, and the Left Bank Canal, 48 miles long, which irrigates lands north of the Godavari valley in the Nasik and Ahmednagar Districts. The Darna Dam (inclusive of its waste weir) is a little over a mile long and has a maximum height of 92 feet above its lowest foundations. The lake has a storage capacity of 7,763 million cubic feet. The cost of the dam was Rs. 34·27 lakhs. The weir at Nandur Madhmeshwar is a work of considerable magnitude, its length being 3,618 feet, inclusive of the Right and Left Bank Canal regulators at either end. It has a maximum height of 34 feet above the river bed. Scouring sluices have been constructed close to the head regulators of the two canals with the object of keeping the approach channels clear of silt. The total area under command of the canals is 232,390 acres, of which some 80,000 acres are irrigable annually. The two canals (Right and Left Bank) are designed to discharge 384 and 228 cusecs at head, with full supply depths of 7 and 6 feet, respectively, and the tail discharges are 114·41 and 35 cusecs with full supply depths of 5 and 3 feet, respectively. Irrigation on

the canals developed very rapidly and an additional storage of 7,000 million cubic feet is considered necessary to develop the Godavari area fully. A scheme for a supplementary storage at Gangapur on the Godavari river near Nasik is accordingly under investigation.

61. On 1st April, the level of water in Lake Beale was 62·15 feet above the sill of the sluices, the corresponding contents being 4,112 million cubic feet. The lowest level was reached on 3rd July, when it was 27·6 feet above the sill, the contents being 492 million cubic feet. The lake overflowed on 24th October when the depth of water was 65 feet, the contents being 7,763 million cubic feet. The draw-off for irrigation from the storage commenced on 5th January and the level gradually went down to 57·4 feet on 31st March, the contents then being 5,412 million cubic feet. The yield from the catchment of the lake (156 square miles) was 42,634 million cubic feet. The average rainfall in the catchment was 141·32 inches. The maximum flood occurred on 5th August. The rainfall in the canal tract was 24·29 inches on the Godavari Right Bank Canal and 25·56 inches on the Left Bank Canal. The rainfall both in the catchment and in the canal tract was exceptionally good and well-distributed.

62. The following table gives the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

	Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
	1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Lake Beale	462	447	1,687	1,684		
Godavari Right Bank Canal	10,246	14,270	1,59,215	2,33,206	3,20,118	4,33,440
Godavari Left Bank Canal.	7,402	9,675	1,25,273	1,63,585		

	Working expenses.		Realisations.		Rainfall.	
	1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Lake Beale					51·94	61·74
Godavari Right Bank Canal	2,46,267	3,00,637	2,12,813	4,86,697	24·29	20·88
Godavari Left Bank Canal.					25·56	23·05

63. The decrease in the area irrigated and the consequent decrease in assessment was due to a decrease in perennial irrigation. Due to timely and good rainfall, the area of two-seasonal and seasonal irrigation was also less. The fall in assessment was due to reduction in water rates. The area of perennial blocks and two-seasonal leases, sanctioned under the canals during the year, was 11,953 acres and 2,070 acres respectively. The perennial limit of the Right Bank Canal extends to mile 60 and that of the Left Bank Canal up to mile 42. The cost of the measuring establishment amounted to Rs. 229 which works out to 5 pies per acre against 8 pies of the previous year. The remissions sanctioned during the year amounted to Rs. 300 and refunds to Rs. 3,071. The expenditure on maintenance and repairs to the canals amounted to Rs. 68,306.

Chankapur Tank—Girna Left Bank Canal.

64. This is a comparatively small irrigation system in the Nasik Collectorate, consisting of a storage reservoir at Chankapur and the Girna Left Bank Canal about 19 miles long. The tank is situated on the Girna river, a tributary of the Tapti, and is formed by a masonry dam, 140 feet high, impounding 1,500 million cubic feet of water. The dam was completed in 1909–10. The total area under command of the canal is 29,182 acres of which 8,500 acres will be irrigated annually when irrigation is fully developed. The designed discharge of the canal at head is 90 cusecs and at tail 15 cusecs, the full supply depths being 4½ and 2 feet, respectively. The canal has been in operation since 1909–10. Its extension was completed in 1920–21. The extension has been designed to carry about 40 cusecs.

65. On 1st April, the level of water in the tank was 73 feet above the sill of the lowest outlet, the corresponding contents being 699 million cubic feet. The level dropped to 46·75 feet by 28th June, the contents then being 237 million cubit feet. It gradually rose to 90·5 feet above the sill of the outlet on 14th August, the contents then being 1,450 million cubic feet, and the draw-off for irrigation commenced on 13th January. The level on 31st March was 82·4 feet above the sill of the outlet, the contents being 1,044 million cubic feet. The run-off from the catchment of the tank (100 square miles) was 8,283 million cubic feet, the rainfall being 62·67 inches. The maximum flood occurred on 14th August. The rainfall in the canal tract was 25·88 inches. The rainfall both in the catchment of the tank and along the canal was satisfactory.

66. The following table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
4,210	4,845	32,222	43,116	33,258	44,159

Working expenses.		Realisations.		Rainfall.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
55,754	67,524	20,317	33,380	25·88	22·27

67. Due to good and timely rainfall there was not much demand for seasonal irrigation and consequently the area irrigated was less. The fall in assessment was due to the reduction in water rates. The areas under sugarcane and two-seasonal crops were 489 acres and 41 acres respectively as against 309 acres and 27 acres in the previous year. The refunds of revenue sanctioned amounted to Rs. 1,089 and the remissions to Rs. 13,724, the latter being mainly due to the damage caused by frost in the rabi season of 1929–30. The maintenance and repairs were carried out at a cost of Rs. 5,531. The cost of the measuring establishment amounted to Rs. 372 which works out to 1 anna 5 pies per acre, the same as in the previous year. The high cost of measurement was due to the high cost of labour and the scattered nature of irrigation.

Kadwa River Works.

68. These works which came into operation in 1868–69 consist of three small canals, viz. the Palkhed, Ojhar Tambat and Wadali, taking off from weirs across the Kadwa river and its tributary Banganga and comprising 38 miles of canals and distributaries. The storage is at Waghad. The Waghad Tank is a Ghat-fed storage on the Kolwan river in Nasik District. It is remarkable for the size of its earthen dam which attains a height of 96 feet where it crosses the gorge of the river. The designed discharges of the Palkhed canal at head and at tail are 90 and 15 cusecs respectively, the corresponding depths at full supply being 4½ and 2 feet. The designed discharges of the Ojhar Tambat canal at head and at tail are 33 and 5 cusecs, respectively, the depths at full supply being 3 feet and 1 foot respectively. The designed discharges of the Wadali canal at head and at tail are 19 and 5 cusecs respectively, the depths at full supply being 2 feet and 1 foot respectively.

69. On 1st April, the depth of water in Waghad Tank was 37·7 feet above the sill of the outlet, the contents being 333 million cubic feet. The level gradually fell to 20·2 feet on 24th June, the contents being 85 million cubic feet. The tank was replenished on 3rd July and the waste weir overflowed on 18th idem. The draw-off for irrigation from the storage commenced on 25th January with 47 feet depth of water in the tank representing a volume of 572 million cubic feet. The level gradually dropped down to 41·05 feet above the sill of the outlet on 31st March, the contents being 417 million cubic feet. The run-off from the catchment of the tank (29 square miles) was 4,323 million cubic feet. The average rainfall in the catchment was 71·47 inches. The maximum flood occurred on 23rd August. The average rainfall in the canal tract was

37·92 inches. The rainfall both in the catchment and along the canal was satisfactory.

70. The sub-joined table gives the results of irrigation, revenue etc. during the year as compared with the average of the past three years :—

Name of canal.	Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Palkhed	1,622	1,315	14,672	18,817	34,585	46,218
Ojhar Tambat ..	919	839	9,956	12,761		
Wadali	805	758	8,335	10,470		

Name of Canal.	Working expenses.		Realisations.		Rainfall.	
	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Palkhed	28,102	35,628	24,952	38,099	41·29	35·46
Ojhar Tambat ..					39·85	28·32
Wadali					32·61	22·81

71. The decrease in assessment was due to the reduction in water rates. The increase in the area irrigated was due to greater demand for canal water in the rabi season. Perennial irrigation is permitted on the entire lengths of the canals but owing to the limited supply available the hot weather irrigation has to depend partially upon wells. The areas under sugarcane and two-seasonal leases sanctioned during the year were 477 acres and 198 acres respectively. The remissions sanctioned totalled Rs. 242 and refunds Rs. 379. The expenditure incurred on maintenance and repairs amounted to Rs. 5,580. The cost of measuring establishment amounted to Rs. 140 which works out to 8 pies per acre as compared with 1 anna 6 pies of the previous year.

Parsul Tank.

72. This small tank depends solely on local rains for its supply and generally stores sufficient water for the monsoon and rabi crops. It was maintained and repaired during the year at a cost of Rs. 584. Considerable damage was done to bandharas, channels, pick-up weirs and lining walls etc. under this tank as a result of abnormal rains on 2nd November. The damage was immediately repaired at a cost of about Rs. 3,100.

73. On 1st April, the level of water in the tank was 24 feet above the sill of the outlet, the contents being 60 million cubic feet. The level went down to 21·5 feet on 16th June, the contents being 49 million cubic feet. Thereafter replenishment was received and the level gradually rose to 35 feet on 6th July, the contents being 119 million cubic feet, when the waste weir overflowed. The highest level reached during the year was 37·4 feet on 3rd November. The level gradually fell to 24·5 feet above the sill of the outlet on 31st March, the contents being 62 million cubic feet. The average rainfall in the catchment of the tank was 32·45 inches.

74. The following table shows the results of irrigation, revenue etc. during the year as compared with the average of the past three years :—

Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
578	957	2,947	5,569	3,119	5,809

Working expenses.		Realisations.		Rainfall.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
10,332	1,816	2,399	6,002	25·40	19·23

75. Owing to timely and good rainfall, there was not much demand for tank water and hence the decrease in the area irrigated. The fall in revenue was mainly due to the reduction in water rates and partly due to the decreased area irrigated. The cost of the measuring establishment was 1 anna 7 pies per acre against 4 annas 6 pies in the previous year. The latter high figure was due to the area being then very small and in two different villages. The refunds of revenue sanctioned amounted to Rs. 12.

AHMEDNAGAR DIVISION.

Pravara River Works.

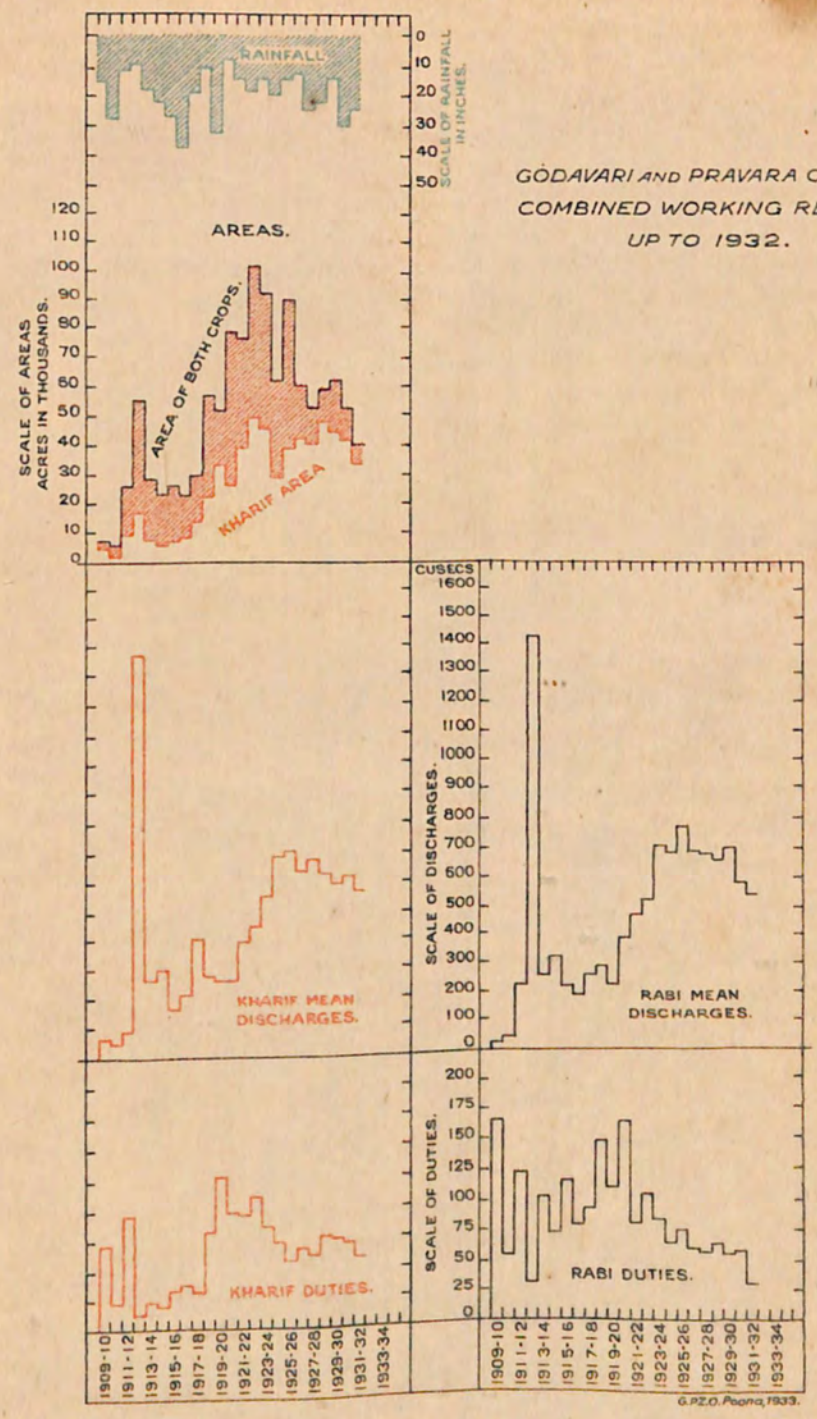
76. This system which was constructed at a cost of Rs. 1½ crores comprises (1) the Wilson Dam at Bhandardara on the Pravara river, which is one of the highest dams in the world, (2) the pick-up weir on the river at Ojhar, 53 miles below the dam and (3) two canals, 33 and 48 miles long which take off at the weir. The canals irrigate lands in Ahmednagar District and command an area of 228,720 acres of which 52,000 acres will be irrigated annually when the canals are fully developed.

The designed discharges of the two canals (Pravara Right and Left Bank) at head are 152·62 and 530 cusecs respectively, the corresponding full supply depths being 5 and 8 feet, and the designed discharges at tail are 81·79 and 102 cusecs, respectively, with a full supply depth of 3 feet. The first few miles of both the canals have been heavily silted and are infested with weeds due to insufficient bed slope and proposals to remodel these sections are under consideration. The Wilson Dam which forms Lake Arthur Hill was commenced in 1911 and completed in 1926. The catchment area of the lake is 47 square miles situated in the Ghats with an assured run-off. The dam which is designed to impound 270 feet depth of water as a maximum is about 1,600 feet long at the top and is constructed across a gorge in the Pravara river valley. At present water is impounded to a depth of 260 feet giving a storage of 10,086 million cubic feet which can be increased to 12,092 million cubic feet, or to a depth of 270 feet by erecting automatic gates on the waste weir. The pick-up weir at Ojhar is 890 feet in length. Silt has accumulated in the weir basin to such an extent that it cannot now hold even a full day's supply for the canals. The undertaking of necessary remedial measures is under contemplation.

77. On 1st April, the level of water in Lake Arthur Hill was 225·9 feet above the sill of the outlet, the corresponding contents being 5,349·06 million cubic feet. The lowest level of 188·85 feet was reached on 3rd July, the contents then being 2,533·14 million cubic feet. Replenishment commenced from 3rd July and the full supply level of 260 feet was reached on 3rd August, the contents being 10,086 million cubic feet. The maximum flood occurred on 17th August when the level was 263·5 feet. The full supply level was maintained till 10th November, when the draw off for irrigation from the storage commenced. The level gradually fell to 237·5 feet on 31st March, the contents then being 6,683 million cubic feet. The yield from the catchment of the lake (47 square miles) was 48,079 million cubic feet. The average of the several rain-gauge readings was 211·78 inches. The rainfall in the canal tract was 25·64 inches on the Pravara Right Bank Canal and 24·94 inches on the Left Bank Canal. The rainfall both in the catchment and in the canal tract was sufficient, timely and well distributed. The late rabi rains were also very satisfactory.

78. The following table shows the results of irrigation, revenue etc. during the year as compared with the average of the past three years :—

Name of canal.	Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
	1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Pravara Right Bank Canal.	5,881	9,455	76,739	1,21,311	3,87,491	5,20,427
Pravara Left Bank Canal.	17,163	23,312	2,99,431	3,78,322		



GODAVARI AND PRAVARA CANALS
COMBINED WORKING RECORD
UP TO 1932.

G.P.O. Poona, 1933.

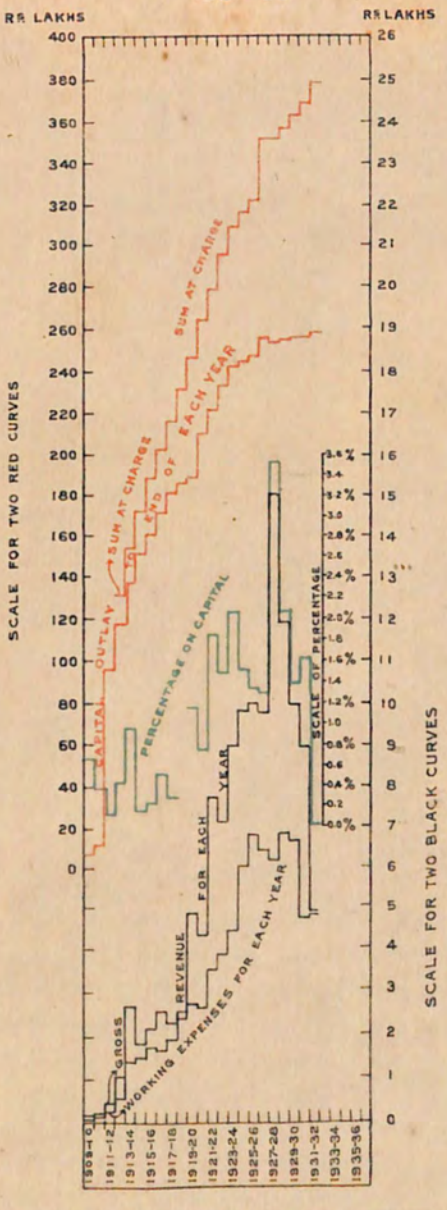
26/11/32

EXECUTIVE ENGINEER,
AHMEDNAGAR DIVISION.

GODAVARI & PRAVARA CANALS COMBINED

FINANCIAL RECORD.

1931—32



NAME OF CANAL	CONSTRUCTION COMMENCED IN	CANAL WAS OPENED IN
GODAVARI CANALS	1907	1911—12
PRAVARA CANALS	1909	1909-10

26/11/32

EXECUTIVE ENGINEER
AHMEDNAGAR DIVISION.

G.P.Z.O.-POONA, 1933

Name of canal.	Working expenses.		Realisations.		Rainfall.	
	1931–32.	Average.	1931–32.	Average.	1931–32.	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches
Pravara Right Bank Canal.	2,35,183	3,01,598	2,70,372	5,44,866	25·64	22·30
Pravara Left Bank Canal.					24·94	22·19

79. The decrease in the area irrigated and the consequent fall in revenue was due to less seasonal irrigation on account of the satisfactory and timely rainfall. The fall in revenue was due to the reduced water rates. The refunds of revenue sanctioned amounted to Rs. 12,330 and remissions to Rs. 11,045. The large amounts of refunds and remissions were due to the concessional rates sanctioned for the rabi season of 1930-31. The whole length of the Right Bank Canal is perennial while the perennial limit of the Left Bank Canal is at mile 38½. The total area of perennial blocks sanctioned on the two canals during the year was 10,898 acres. The area under two-seasonal leases was 4,150 acres. The cost of the measuring establishment amounted to Rs. 501, which works out to 8 pies per acre against 6 pies for the previous year. The increase was due to the less seasonal irrigation and the scattered nature of irrigation. The expenditure during the year on maintenance and repairs to the Wilson Dam and the canals amounted to Rs. 67,598.

Bhatodi Tank.

80. This is a small tank situated on the Mehekari river about 12 miles from Ahmednagar. It depends entirely on local rains for its supply which generally suffices for the monsoon and part of the rabi season. The tank has silted heavily and its storage capacity is in consequence reduced from 154 to 39 million cubic feet. To increase the capacity it is proposed to raise the level of the waste weir by one foot. The tank dried up on 11th March and the first replenishment was received on 20th June which raised the level of water to 16·2 feet above the outlet sill. The highest level reached during the year was 24·8 feet on 18th September, when 2·3 feet depth of water passed over the waste weir. A temporary earthen bund was constructed on the waste weir to bund up water in anticipation of late replenishment. The level of water in the tank on 31st March was at 20·35 feet, the contents being 23 million cubic feet. The expenditure incurred on maintenance and repairs during the year amounted to Rs. 1,838. The area of two seasonal leases sanctioned was 350 acres. The following table gives the results of irrigation, revenue

etc. during the year as compared with the average of the past three years :—

Area irrigated.		Irrigation assessment.		Gross assessed revenue.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
759	743	3,325	3,339	6,731	7,515

Working expenses.		Realisations.		Rainfall.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
5,340	6,214	5,151	8,212	27·47	23·61

CENTRAL CIRCLE.

SHOLAPUR DIVISION.

81. The area irrigated, gross assessed revenue and working expenses of irrigation works in the Sholapur Division during the year under report as compared with the averages of the preceding three years are given in the following statement :—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Ekruk Tank	3,903	4,332	1,51,843	1,43,479	21,959	21,794
Koregaon Tank ..	487	551	2,140	2,159	2,731	2,415
Ashti Tank	3,225	4,280	19,025	24,047	12,351	11,335
Pathri Tank	946	1,076	11,161	12,543	5,154	5,079

EKRUK TANK.

82. The Ekruk Tank near Sholapur, which came into operation in the year 1872-73, is an artificial reservoir formed by a large earthen embankment 7,000 feet long with a maximum height of 76 feet. It supplies water not only for irrigation but also to the town of Sholapur, the Mills and the G. I. P. Railway. Under unfavourable conditions of replenishment the tank is not able to meet all the demands, agricultural and non-agricultural, made on it, and the provision of a supplementary storage tank is under contemplation.

83. On 1st April, the level of water in the tank was 32·56 feet above the sill of the outlet. The storage was considered satisfactory and extra 1,000 acres of monsoon crops were irrigated. The highest level reached was 33·68 feet in the first fortnight of October. The replenishment was considerably less than that of the last year when the level of water had risen to 36·5 feet. With a view to making the best possible use of the available supply, applications to the extent of 1,700 acres over and above the sanctioned leased area were invited but owing to timely and sufficient rain-fall, demand was received for 600 acres only. The mean rain-fall gauged at the five stations in the catchment of the tank (159 square miles) was 21·05 inches against 21·5 inches, the average of the preceding 3 years. The total replenishment received in the tank amounted to 811·1 million cubic feet.

Koregaon Tank.

84. On 1st April, the level of water in the tank was 6·12 feet. It gradually went down to 3·9 feet on 22nd July. With the rainfall of 1·8 inches on 26th July, a replenishment of 1·1 feet was received. The rains in September brought a substantial replenishment of 15 feet. The storage was fully utilised in meeting the demands of rabi lease-holders. The rainfall gauged at Koregaon was 23·6 inches against 20·97 inches, the average of the preceding three years.

Ashti Tank.

85. On 1st April, the level of water in the tank was 10·44 feet over the sill of the outlet. It gradually went down to 8·28 feet on 2nd June. Owing to good rains in June, the level rose to 17·4 feet on 1st July. With this storage, an area of about 685 acres in the kharif season was irrigated in addition to meeting the demands of rabi lease-holders. There was no further demand for water owing to timely rainfall in the rabi season. The mean rainfall gauged at the two stations in the catchment area of the tank was 32·77 inches against 21·21 inches, the average of the preceding three years. The total replenishment received was 1122·09 million cubic feet.

Pathri Tank.

86. On 1st April, the level of water in the tank was 27·12 feet over the sill of the outlet. It gradually went down to 24·39 feet on 18th June. Replenishments were received in August and September and the waste-weir overflowed from 14th September. The storage was utilised in meeting the demands of the rabi lease-holders and of the Barsi Municipality. The mean rainfall gauged at two stations in the catchment area of the tank was 32·66 inches against 26·1 inches, the average of the preceding three years.

KHANDESH DIVISION.

Jamda Canals.

87. The source of supply of these canals is the Girna river supplemented from time to time by water from the Chankapur Tank.

The rainfall during the year though heavy was unseasonal and hence there was much demand for canal water. The rainfall in the catchment of the canals was 43·82 inches against 27·85 inches, the average of the preceding three years. The subjoined table shows the area irrigated, gross assessed revenue and working expenses during the year as compared with the averages of the preceding three years :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
2,080	1,380	14,732	10,666	12,663	12,778

The increase in the area irrigated and the consequent increase in revenue was due to keen demand for water during the rabi season.

Hartala Tank.

88. This tank derives its supply from local rains and the supply is uncertain. On 1st April, the contents of the tank were 19·06 million cubic feet which gradually diminished and the tank was dry on 31st May. The first replenishment was received on 1st July to the extent of 23·82 million cubic feet. The maximum storage reached was 134·9 million cubic feet on 13th October. On 31st March 1932 the storage was 89·97 million cubic feet. The rainfall during the year was exceptionally good and seasonal and there was therefore no demand for water in the kharif season and little in the rabi season. The rainfall of the year was 42 inches against 25·85 inches the average of the preceding three years. The area irrigated, gross assessed revenue and working expenses during the year as compared with the averages of the previous triennium are given in the following table :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
64	87	566	955	896	979

Mhaswa Tank.

89. The tank derives its supply from local rains. On 1st April, the storage in the tank was 63·4 million cubic feet and the first replenishment was received on 28th June and raised the contents of the tank to 79·98 million cubic feet. The storage reached the maximum of 172·4 million cubic feet on 25th September and gradually went down to 104·58 million cubic feet at the end of the year. The rainfall gauged at the tank was

42·47 inches against 22·88 inches, the average of the preceding three years. The area irrigated, gross assessed revenue and working expenses during the year as compared with the averages of the preceding three years are given below :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres. 207	Acres. 445	Rs. 1,416	Rs. 2,628	Rs. 1,395	Rs. 1,784

The decrease in the area irrigated and the consequent decrease in revenue was due to there being no irrigation in the kharif season on account of seasonal rainfall.

Shahada Channel.

90. This channel is fed by the Gomai river which has a perennial flow. The rainfall in the area of the channel was sufficient and seasonal and so there was less demand for water in the kharif season. The rainfall at Shahada during the year was 37·67 inches against 29·53 inches, the average of the preceding three years. The area irrigated, gross assessed revenue and working expenses during the year as compared with the averages of the preceding three years are given below :—

Area irrigated.				Gross assessed revenue.		Working expenses.	
Patasthal.		Jirayat.					
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres. 1,006	Acres. 1,075	Acres. 448	Acres. 537	Rs. 8,668	Rs. 9,348	Rs. 3,674	Rs. 6,518

Lower Panjhra River Works.

91. These works comprise 8 bandharas and 9 channels between Dhulia and Betawad on the Panjhra river and the Mukti tank situated about 4 miles to the south-west of Dhulia. The channels get their supply from the river but when that is insufficient, it is supplemented by water from the Mukti tank.

92. On 1st April, the contents of the tank were 208·26 million cubic feet which gradually went down to 84·64 million cubic feet on 26th June. The first replenishment was received on 27th June and raised the contents to 84·66 million cubic feet. The maximum contents reached were 320·03 million cubic feet on 2nd October which went down to 208·26 million cubic feet at the close of the year. The rainfall in the area of the Lower Panjhra River Works was seasonal but insufficient and there

was demand for water in both the seasons. The rainfall gauged in the catchment of the tank was 28·27 inches against 22·19 inches, the average of the preceding three years.

93. The area irrigated, gross assessed revenue and working expenses during the year as compared with the averages of the preceding three years are given below :—

Area irrigated.				Gross assessed revenue.		Working expenses.	
Patasthal.		Jirayat.					
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres. 1,259	Acres. 1,452	Acres. 1,265	Acres. 1,222	Rs. 26,901	Rs. 26,841	Rs. 16,031	Rs. 5,800

SATARA DIVISION.

94. The area irrigated, gross assessed revenue and working expenses of the works in this Division during the year as compared with the averages of the preceding three years are given in the following statement :—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Krishna Canal ..	4,986	5,280	85,825	68,611	19,317	23,329
Rewari Canal ..	912	858	5,268	4,334	3,414	3,250
Upper Man River Works.	1,597	1,243	5,686	4,938	7,863	8,125
Yerla River Irrigation Works.	3,775	4,510	18,628	19,179	14,204	35,723
Chikhli Canal ..	223	382	1,778	1,972	2,301	2,103
Maini Tank ..	1,391	2,253	6,477	7,947	5,686	5,905

KRISHNA CANAL.

95. The total rainfall gauged at Retre Budruk which is at the centre of the canal tract was 35·03 inches against 23·8 inches, the average of the preceding three years. The rainfall was sufficient in both the seasons and well-distributed. Due to there being sufficient supply of water in the river, there was increased perennial irrigation under the canal and consequent increase in revenue.

REWARI CANAL.

96. The rainfall gauged at Rewari which is one mile below the bandhara was 33·81 inches against 27·56 inches, the average of the preceding three years. In both the seasons, the rainfall was sufficient and well-distributed.

Upper Man River Works.

(*Pingli Tank*).

97. On 1st April, the level of water in the Pingli tank was at R.L. 2362·33, the corresponding contents being 50·56 million cubic feet. A small replenishment was received on 11th April when the R.L. of the tank was 2363·04 equivalent to 57·07 million cubic feet of water. A substantial replenishment was received on 19th April when the level of water stood at R.L. 2370·54, the contents being 146·83 million cubic feet. The supply was utilised for irrigating hot-weather and monsoon crops to the extent of 774 acres as against 143 acres, the average of the past three years. The waste weir overflowed from 19th to 22nd September and again from 1st October to January 10th, the maximum depth of flood over the weir being 0·25 foot. The highest level reached during the year was R.L. 2371·84 on 2nd November. The rainfall gauged at Gondowla which is about 3 miles below the tank was 21·7 inches against 20·94 inches, the average of the preceding three years.

Yerla River Irrigation Works.

(*Nehr Tank*).

98. On 1st April, the level of water in Nehr tank was at R.L. 2661·13 equivalent to 279·19 million cubic feet of water. The first replenishment was received on 18th September when the level of water stood at R.L. 2666·96 equivalent to 406·8 million cubic feet contents, and water flowed over the waste weir till 21st September. The level then gradually fell but with substantial replenishment received on 1st October, the waste weir overflowed again from 1st to 2nd and 4th to 6th October. The rainfall gauged at Khatgaon which is about 4 miles below the tank was 35·74 inches against 30·52 inches, the average of the preceding 3 years.

Chikhli Canal.

99. On 1st April, the river was flowing with a depth of 1·5 feet. A flood was received in the river on 22nd May and raised the depth of flow to 3 feet. The level then gradually went down and there was no flow in the river from 26th May to 1st June. On 11th June there was a second flood and the highest flood received during the year was on 1st November. The rainfall gauged at Chikhli which is at the centre of the canal tract was 21·41 inches against 18·9 inches, the average of the preceding three years.

Maini Tank.

100. On 1st April, the tank was dry and the first replenishment was received on 20th June, when the level of water stood at R.L. 2297·12, the contents being 1·46 million cubic feet. The level was falling when the 2nd replenishment received on 29th June raised it again to R.L. 2297·12. The highest level reached during the year was R.L. 2305·02 on 1st October, and water flowed over the waste weir during the period

29th June to 29th December. The supply was utilised for rabi crops, the area irrigated being 1,351 acres. The area irrigated in the kharif season was 41 acres only against 761 acres, the average of the past 3 years, as there was timely rainfall in the monsoon. The rainfall gauged at Maini was 25·1 inches against 24·46 inches, the average of the preceding three years.

SOUTHERN CIRCLE.

BELGAUM DIVISION.

Gadikeri Tank.

101. The lands under this tank are assessed at consolidated rates. The area irrigated and the irrigation share of revenue were 418 acres and Rs. 2,344 respectively and the working expenses amounted to Rs. 373.

Gokak Canal.

102. This canal is the most important irrigation system in the Southern Circle. The system consists of a reservoir formed by a masonry weir across the Ghataprabha river at Dhupdal in the Belgaum District, a short distance above the Gokak Falls, with 16 miles of main and branch canals and 36 miles of distributaries. The canal commands an area of 18,668 acres, the area irrigable being 17,627 acres. Though the Dhupdal storage is mainly intended for irrigating lands under the canal, a stipulated quantity of water is issued to the Gokak Mills Company in accordance with an agreement between Government and the Company, in consideration of which a sum of Rs. 14,313 is annually paid by the Company, subject to a rebate in the event of the supply falling short of that contracted for.

103. During the year under report, the discharge of 146 cusecs to be supplied daily to the Company had to be reduced to 80 cusecs from 8th May when the level of water in the reservoir was 17·44 feet. The supply was further reduced to 60 cusecs from 27th May when the level went down to 15·69 feet. When replenishment was received in the tank, the supply was raised to 146 cusecs from 8th June and was continued to the end of March.

104. On 1st April, the level of water in the reservoir was 21·01 feet which gradually went down to 15·49 feet on 20th May. It rose to 22·4 feet on 5th June when there was an overflow for a very short period for the first time during the year. The level gradually rose to 23·55 feet on 3rd July with slight variations in the interval. On 8th August, it reached 24·95 feet which was the highest flood that passed over the weir during the year. The overflow was continuous from 3rd July to 8th September. On 31st March 1932 the level of water in the reservoir was 22·31 feet.

105. According to the sanctioned arrangement water was supplied to the M. and S. M. Railway Company at the Hukeri Road Station for engines and passengers at the rate of Rs. 50 per month. The total amount recovered from the Company during the year was Rs. 600.

106. The following table gives information regarding the area irrigated, revenue, etc., during the year as compared with the average of the previous three years :—

		1931-32.	Average.
Area irrigated	..	6,145 acres.	9,961 acres.
Gross assessed revenue	..	Rs. 66,119	Rs. 87,660
Working expenses	..	Rs. 29,963	Rs. 24,895

The decrease both in area and assessment was partly due to timely rain-fall and partly to the stoppage of water for hot-weather crops. The increase in working expenses was due to the special repairs carried out to the breach in the Dhupdal weir.

DHARWAR DIVISION.

MUCHKUNDI TANK.

107. This tank depends on local rains. Due to the precarious rain-fall and the smallness of the catchment area, the supply in the tank is uncertain. On 1st April, the level of water in the tank was at R.L. 1,787·75 or 1·75 feet above the sill of the outlet. The highest level reached during the year was R.L. 1,799·86 on 22nd September or 16·42 feet above the sill of the outlet. On 31st March, the level was at R.L. 1795·16 or 11·72 feet above the sill of the outlet. The rainfall during the year was favourable. Due to timely and sufficient rainfall, no irrigators applied for water and no area was irrigated. The gross assessed revenue during the year was Rs. 860 and the working expenses amounted to Rs. 2,109.

DAMBAL TANK.

108. On 1st April, the tank was dry and received its first replenishment on 4th May. The highest level reached during the year on 5th June was R.L. 141·4 or 7 feet above the silted tank bed level. The level went down gradually and the tank was empty from 30th January. The lands under this tank are assessed partly at water rates and partly at consolidated rates. The total area irrigated and the assessment under the former head were 66 acres and Rs. 241 against 55 acres and Rs. 278 of the previous year. The area irrigated under consolidated assessment and the irrigation share of revenue were 143 acres and Rs. 916 respectively. The total assessed revenue was Rs. 1,922 and the working expenses amounted to Rs. 573.

MEDLERI TANK.

109. On 1st April, the level of water in the tank was at R.L. 172·4 or 7·4 feet above the sill of the outlet. The first replenishment was received on 4th April. The tank was dry from 6th September to 6th November and again received replenishment on 7th November. There was no water in the tank on 31st March. The area irrigated and the assessment thereon were 47 acres and Rs. 600 against 58 acres and Rs. 560, the average of the last three years. The gross assessed revenue was Rs. 789 and the working expenses amounted to Rs. 882.

Madag Tank.

110. On 1st April, the level of water in the tank was at R.L. 1874·42 or 1·15 feet above the sill of the outlet. The first replenishment was received on 5th April. The tank filled to full supply level (R.L. 1877·11) on 5th July and overflowed from 6th July to 27th January. The highest level reached during the year was R.L. 1884·46 or 6·75 feet above the crest of the waste weir. The supply was quite sufficient for irrigating lands under the tank for the whole year. On 31st March, the level of water in the tank was at R.L. 1874·96 or 1·7 feet above the sill of the outlet. The area irrigated and the assessment thereon were 485 acres and Rs. 2,210 against 438 acres and Rs. 2,088, the average of the last three years. The gross assessed revenue amounted to Rs. 2,363 against Rs. 2,736, the average of the previous three years. The decrease in revenue was due to decrease in miscellaneous receipts. The working expenses amounted to Rs. 1,680 against Rs. 2,057, the average of the previous three years.

Asundi Tank.

111. On 1st April, the level of water in the tank was at R.L. 102·31 or 2·06 feet above the silted tank bed. The first replenishment was received on 22nd April. The maximum level reached during the year was R.L. 109·03 or 8·78 feet above the silted bed. The waste weir overflowed from 11th to 17th November. The supply in the tank was quite sufficient and the level of water on 31st March was 4·58 feet above the sill of the outlet. The lands under this tank are assessed partly at water rates and partly at consolidated rates. The area irrigated and the irrigation assessment were 43 acres and Rs. 260 respectively against 63 acres and Rs. 384, the average of the last three years. The area under consolidated assessment was190 acres and the irrigation share of revenue amounted to Rs. 686. The gross assessed revenue amounted to Rs. 1,051 against Rs. 1,440, the average of the last three years. The decrease in revenue was due to heavy decrease in miscellaneous receipts. The working expenses amounted to Rs. 1,105.

Dharma Canal.

112. This canal is fed by the Dharma river and a number of tanks are in turn fed by the canal. The canal flowed from 2nd July. The monsoon during the year was favourable. Due to heavy rains, there were some breaches in the canal bund which were promptly repaired. The late rains helped to replenish the tanks depending on the canal. The lands under this canal are assessed partly at water rates and partly at consolidated rates. The area irrigated and the water rates assessed thereon were 441 acres and Rs. 2,577 against 451 acres and Rs. 2,610 of the previous year. The area under consolidated assessment was 5,227 acres, the irrigation share of revenue being Rs. 24,212. The gross assessed revenue (after deducting Rs. 23,156 to be credited to the old work) amounted to Rs. 3,633. The working expenses amounted to Rs. 1,871 against Rs. 1,247 of the previous year.

KANARA DIVISION.

MAVINKOP TANK.

113. The management of this tank has been entrusted to the Revenue Department. The rainfall during the year was 66·25 inches and the supply in the tank was sufficient. The area under this tank is assessed at consolidated rates. The area irrigated during the year was 403 acres and the irrigation share of revenue amounted to Rs. 2,045 against 412 acres and Rs. 1,297 of the previous year. The working expenses amounted to Rs. 292 against Rs. 590 of the previous year and the gross assessed revenue was Rs. 2,045.

114. The following statement gives the rainfall during the year gauged at the sites of the works as compared with the average rainfall of the previous ten years.

—	Yekkambi (Dharma Canal).	Muchkundi Tank.	Dambal Tank.	Medleri Tank.	Madag Tank (Masur).	Asundi Tank.	Gokak Canal (Dhupdal).
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Kharif ..	81·80	22·13	9·90	9·53	23·75	6·25	15·79
Rabi ..	6·39	2·67	2·47	7·37	10·60	7·41	6·66
Total ..	88·19	24·80	12·37	16·90	34·35	13·66	22·45
Average of the previous ten years	82·58	12·20	13·44	16·76	24·77	19·90	17·80

SECTION II.

COMPRISING IRRIGATION WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.

GENERAL REMARKS.

115. The area of irrigation under, and revenue due from works (for which neither capital nor revenue accounts are kept) in the Deccan and Gujarat as recorded in the register of these works were 284,118 acres and Rs. 9,22,130 respectively. The following tables give by Districts details of the area irrigated, expenditure, revenue, etc., in respect of irrigation works on which expenditure was incurred during the year :—

TABLE I.

Showing the area irrigated in the different Districts in the Deccan and Gujarat and the consolidated land revenue and water rates assessed and recovered during the year 1931-32 in respect of irrigation works (for which neither capital nor revenue accounts are kept) on which expenditure was incurred during the year.

Collectorate.	Number of works.	Area irrigated.	Revenue.			Remarks.
			Irrigation share.	Land share.	Total.	
		Acres.	Rs.	Rs.	Rs.	
Ahmedabad ..	21	140	(A) 657	598	1,255	(A) Includes Rs. 463 on account of "Direct receipts-Water rates."
Kaira ..	22	7,300	(B) 18,810	23,894	42,704	(B) Includes Rs. 6,865 on account of "Direct receipts-Water rates."
Panch Mahals ..	18	1,033	(C) 3,533	1,436	4,969	(C) Includes Rs. 2,844 on account of "Direct receipts-Water rates."
Surat ..	28	1,096	2,721	10,531	13,252	
Broach ..	3	77	132	373	505	
East Khandesh ..	2	500	3,897	1,562	5,459	
West Khandesh ..	2	576	(D) 3,230	474	3,704	(D) Includes Rs. 1,698 on account of "Direct receipts-Water rates."
Nasik ..	54	13,189	(E) 52,301	12,903	65,204	(E) Includes Rs. 741 on account of "Direct receipts-Water rates."
Poona ..	1	139	(F) 285	..	285	(F) Water rate direct receipts.
Sholapur ..	3	522	(G) 1,098	..	1,098	(G) Water rate direct receipts.
Belgaum ..	23	2,147	10,370	2,593	12,963	
Dharwar ..	32	5,087	20,788	5,197	25,985	
Kanara ..	31	2,567	5,931	1,483	7,414	
Bijapur ..	1	14	104	78	182	
Ratnagiri ..	1	211	827	..	827	
Ahmednagar ..	2	3,624	(H) 8,075	..	8,075	(H) Water rate direct receipts.
Total ..	244	38,222	1,32,759	61,122	1,93,881	

TABLE

Showing actual expenditure and receipts for the year 1931-32 on the revenue accounts are kept) on which

Collectorate.	Expenditure.						
	Direct charges.						
	Extensions and improvements.	Maintenance and repairs.	Establishment.	Tools and Plant.	Total.	Share of collection charges.	Grand Total.
1	2	3	4	5	6	7	8
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Ahmedabad ..	3,819	11,123	13,826	285	57,160	66	59,496
Kaira	2,336	14,577				2,042	
Panch Mahals ..	985	10,209				228	
Surat	..	14,783	5,100	105	21,081	436	21,530
Broach	..	1,093				13	
East Khandesh ..	702	217	2,160	36	4,353	390	4,930
West Khandesh ..	..	1,238				187	
Nasik	1,876	26,347	17,013	393	45,629	5,171	50,800
Poona	Works 13,016 3,920	5,249	63,291	889	86,365	5	86,370
Sholapur ..	..	1,923	1,660	32	3,615	33	3,648
Belgaum	119	13,572	5,687	166	19,597	1,037	20,644
Bijapur	..	53				10	
Dharwar ..	3,704	34,918	15,924	448	54,994	2,083	57,077
Kanara	3,442	9,939	5,538	161	19,080	593	19,673
Ratnagiri ..	..	2,484	1,028	30	3,542	83	3,625
Ahmednagar ..	Works 27,662	11,915	27,711	552	67,840	162	68,002
Total ..	Works 40,678 ; Extensions and improvements 20,903	1,59,640	1,58,938	3,097	3,83,256	12,539	3,95,795

II.

irrigation works in the Deccan and Gujarat (for which neither Capital nor expenditure was incurred during the year.

Actual Receipts.

Direct Receipts.			Indirect receipts—Share of consolidated revenue.	Grand total, direct and indirect receipts.	Refunds of revenue.	Gross receipts less refunds.
Water rates from irrigation.	Miscellaneous.	Total direct receipts.				
9	10	11	12	13	14	15
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
463	414	877	194	1,071	....	1,071
6,865	3,572	10,437	11,945	22,382	....	22,382
2,844	2,411	5,255	689	5,944	....	5,944
....	1,665	1,665	2,721	4,386	26	4,360
....	..	....	132	132	....	132
....	..	....	3,897	3,897	....	3,897
1,698	36	1,734	1,532	3,266	....	3,266
741	1,137	1,878	51,560	53,438	170	53,268
285	145	430	....	430	....	430
1,098	1,300	2,398	....	2,398	2	2,396
....	5	5	10,370	10,375	....	10,375
....	7	7	104	111	....	111
....	226	226	20,788	21,014	....	21,014
....	..	....	5,931	5,931	....	5,931
....	..	....	827	827	....	827
8,075	2,754	10,829	....	10,829	....	10,829
22,069	13,672	35,741	1,10,690	1,46,431	198	1,46,233

DETAILED REPORTS BY LOCAL OFFICERS.

NORTHERN CIRCLE.

AHMEDABAD, KAIRA AND PANCH MAHALS AND SURAT AND BROACH DIVISIONS.

KHARI SLUICES.

116. There were three floods during the year in the Khari river at Pinglaj, the head of the Khari sluices system, on 2nd and 13th August and 11th October. The flood of the 2nd August lasted for a day only but the other two floods maintained a good flow in the river throughout the season, the discharge being about 60 cusecs in the middle of November. In the kharif season the Kalambandhi rotation was commenced from 15th September and continued till 15th November when the rice crop was ripe. Against the himayat-paying area of 7,240 acres in the 11 Kalambandhi villages, 6,433 acres were cropped with rice. Non-himayat-paying area of about 522 acres was also irrigated and brought to maturity. The Khari sluices including the Goblaj tank and the Bherai and the Naika reservoirs were maintained in good order at a cost of Rs. 5,123. The miscellaneous revenue under the Khari sluices system amounted to Rs. 389 against Rs. 522 of the previous year, the decrease being due to less sale of babul trees. The following table compares the area irrigated and the assessment levied during the year with the average of the previous three years :—

	Average.		1931-32.	
	Area irrigated.	* Revenue after deducting remissions.	Area irrigated.	* Revenue after deducting remissions.
	Acres	Rs.	Acres	Rs.
I. Irrigation above the Kalambandhi villages	448	1,913	1,072	4,346
II. Irrigation from tanks fed by the Khari river—(Goblaj) ..	667	1,951	734	5,107
(Galki) ..	230	271	529	1,325
III. Irrigation from the Khari Sluices in the 11 Kalambandhi villages..	6,429	36,786	6,433	35,827
Total ..	7,774	40,921	8,768	46,605

* The revenue is consolidated.

117. The assessment under the Khari Sluices in the Kalambandhi villages is consolidated. The average rates per acre for land and water worked out during the year as under :—

—	Irrigation share.	Land share.	Total consolidated.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Government land	0 5 4	5 7 0	5 12 4
Alienated land	0 5 4	2 0 7	2 5 11

Muvalia Tank.

118. This is an important tank situated in the vicinity of Dohad town in the Panch Mahals Collectorate and having a catchment area of about 39 square miles of hilly tract. It fills in years of normal rainfall. During the year under review it filled to its full capacity owing to good rainfall, which at the site of the tank was 28·6 inches against 27·24 inches, the average of the previous three years. The total area irrigated during the year was 316 acres and the assessment amounted to Rs. 1,164. The miscellaneous revenue realised under the tank amounted to Rs. 340 against Rs. 412 of the previous year. The tank with its dam, canals, distributaries, etc. was maintained in good order at a total cost of Rs. 4,373.

Old Tanks.

119. Improvements to two tanks in the Ahmedabad Division and 5 tanks in the Kaira & Panch Mahals Division, and repairs to 2 tanks in the Ahmedabad, 26 tanks in the Kaira & Panch Mahals and 31 tanks in the Surat & Broach Divisions were carried out at a total cost of Rs. 2,724 and Rs. 31,855 respectively. The area irrigated and revenue derived from the old irrigation tanks and bunds were as under :—

Name of Collectorate.	Area irrigated.	Revenue.		
		Irrigation share.	Land share.	Total consolidated assessment.
	Acres	Rs.	Rs.	Rs.
Ahmedabad	10,703	20,465	47,767	68,232
Kaira	566	1,772	517	2,289
Panch Mahals	270	689	1,436	2,125
Surat	1,701	3,354	16,774	20,128
Broach	806	1,505	4,969	6,474
Total ..	14,046	27,785	71,463	99,248

120. The work of constructing the Warod Sapoi Tank in Jhalod Mahal which was in progress was completed at a total cost of Rs. 36,881 against the estimated amount of Rs. 43,000, the outlay during the year being

Rs. 379. The drainage channels in the Ahmedabad, Kaira & Panch Mahals and Surat & Broach Divisions were maintained in good order at a cost of Rs. 8,005, Rs. 4,121 and Rs. 5,298 respectively. The protective and reclamation works in the Surat & Broach Division were maintained and and repaired at a total cost of Rs. 7,786.

DECCAN IRRIGATION CIRCLE.

MUTHA CANALS DIVISION.

KHAMGAON TANK,

121. This partially completed tank received replenishment due to local rains in the monsoon. The available supply was issued for irrigating 43 acres which brought in a gross assessed revenue of Rs. 240, the figures for the previous year being 138 acres and Rs. 451 respectively. The maintenance and repairs charges on the tank amounted to Rs. 397.

Bandharas.

122. The sub-joined table gives the area irrigated and the consolidated assessed revenue from the irrigation works in the Poona Collectorate during the year as compared with the average of the past three years :

	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
	Acres.	Rs.	Rs.	Rs.
1931-32	2,703	13,517	5,685	19,202
Average	2,606	13,293	5,981	19,274

The expenditure incurred on these works during the year was Rs. 843.

NASIK IRRIGATION DIVISION.

KHIRDI SATHE TANK.

123. There was good rainfall in the catchment and the tank filled to its full supply level. On 1st April, the level of water in the tank was 8·1 feet above the sill, the contents being 18 million cubic feet. The tank received replenishment on 17th June. The level gradually rose to 11·1 feet on 28th June, the contents being 27 million cubic feet. It again rose up to 19·4 feet on 16th November, the contents being 85 million cubic feet. On 31st March, the level of water was 15·4 feet, the contents being 52 million cubic feet. The area irrigated during the year was 544 acres, which yielded an irrigation and gross assessed revenue of Rs. 4,071 and Rs. 4,285 respectively, the figures for the previous year being 314 acres and Rs. 788 and Rs. 960 respectively. The increase in area and assessment was due to the keen demand for irrigation water on account of the good supply in the tank during the year. The maintenance and repair charges on the work amounted to Rs. 381.

Bandharas.

124. There are numerous bandharas or small weirs built across streams having a good supply of water to raise the level of water sufficiently to command the land to be irrigated. There are 296 such works in the Nasik Collectorate. The total expenditure incurred on these works amounted to Rs. 31,548 during the year. The supply to the bandharas was generally good and sufficient owing to timely rainfall. The following table compares the year's results as regards the area irrigated, and revenue with the average of the past three years :—

	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
	Acres.	Rs.	Rs.	Rs.
1931-32	28,655	2,04,006	54,652	2,58,658
Average	27,674	1,91,558	53,008	2,44,566

AHMEDNAGAR DIVISION.

Visapur Tank.

125. The Visapur Tank Dam across the Hanga river, a tributary of the Bhima, was started as a famine relief work in 1896 and was subsequently completed by slow stages to provide employment for Criminal Tribes labour and convict labour. This earthen dam which is 7,440 feet long and 84 feet high over the river bed forms a lake with a net capacity of 1,136 million cubic feet. It was completed in June 1927. Out of the estimated cost of Rs. 41 lakhs for the whole scheme, Rs. 21 lakhs were spent on the dam and head works and the balance on the construction of the canal, distributaries and minors. The main canal with distributaries and minor channels is 46 miles long. The total area under command is 95,000 acres of which 26,000 acres are irrigable. It is estimated that 13,143 acres of two seasonal and rabi crops will be irrigated on full development of the canal. The catchment area of the tank is 159 square miles and it has a capacity of 1,172 million cubic feet over the sill of the outlet. Irrigation was first started under this tank during the rabi season of 1929-30.

126. On 1st April, the level of water in the tank was 33·18 feet above the sill of the outlet, the contents being 907 million cubic feet. The lowest level of 29·64 feet was reached on 20th June, the contents being 741 million cubic feet. The highest level reached during the year was, 36·9 feet on 14th November, the contents being 1,106 million cubic feet. Water for monsoon irrigation was let out from 12th July and for rabi irrigation from 22nd October. The level gradually went down to 30·58 feet on 31st March, the contents being 783 million cubic feet.

127. The area irrigated during the year, the irrigation assessment and the gross assessed revenue were 3,139 acres, Rs. 9,326 and Rs. 11,930 respectively against 3,776 acres, Rs. 12,225, and Rs. 16,082 respectively, the average of the preceding two years. The decrease in the area irrigated and the consequent decrease in revenue was due to timely and good rainfall and the consequent less demand for canal water in both the kharif and rabi seasons. There were 9 acres under sugarcane and 605 acres under two seasonal leases. The expenditure incurred on maintenance and repairs and extensions and improvements during the year amounted to Rs. 10,272 and Rs. 27,662, respectively.

KHUNTEPHAL TANK.

128. This is a very small tank with a capacity of about 57 milion cubic feet and is situated on a small nala about 45 miles from Ahmednagar. It is entirely dependent on local rains for its supply. It received its first replenishment during the year on 28th June and overflowed on 22nd September at R.L.123·8. The highest level of overflow was on 2nd October at R.L.124. The level on 31st March was at R.L. 119·1, the contents being 28 million cubic feet. The rainfall during the year was 38·7 inches against 23·03 inches, the average of the past 2 years. Due to very good rains, there was no demand for water in both the kharif and rabi seasons and no irrigation was done from the tank. The maintenance and repairs charges amounted to Rs. 1,643.

CENTRAL CIRCLE.

129. The area irrigated and the gross assessed revenue on small tanks were 830 acres and Rs. 3,791 respectively. The area irrigated and the irrigation share of revenue on the old bandharas and channels in the Khandesh Division were 8,646 acres and Rs. 65,054 respectively.

SHOLAPUR DIVISION.

WADSHIVNE TANK.

130. On 1st April, the level of water in the tank was 2·14 feet over the sill of the outlet. It gradually went down until the tank was dry on 18th June. On 19th June, there was good rainfall which raised the level of water in the tank to 4·4 feet. There was no demand for water in the kharif season due to timely rains. The total replenishment received was 136·04 million cubic feet. The mean rainfall gauged at two stations in the catchment area of the tank (14·5 square miles) was 30·66 inches against 19·71 inches, the average of the preceding three years. The area irrigated during the year was 522 acres against 782 acres, the average of the last three years. The gross assessed revenue amounted to Rs. 2,372 against Rs. 3,474, the average of the preceding three years. The expenditure on maintenance and repairs amounted to Rs. 1,325 against Rs. 1,381, the average of the past three years.

KHANDESH DIVISION.

TALWADA TANK.

131. The supply in this tank is generally uncertain. On 1st April, there was no water in the tank. The first replenishment was received on 3rd July and brought in a storage of 1·03 million cubic feet. The maximum supply reached was 65·04 million cubic feet on 8th November, and it was utilised in meeting the demands in the rabi season. There was very little irrigation in the kharif season. The year closed with 28·64 million cubic feet of water in the tank. The rainfall gauged during the year was 25 inches against 17·28 inches, the average of the preceding three years. The area irrigated was 308 acres and the gross assessed revenue amounted to Rs. 1,419. The revenue realised from water rates amounted to Rs. 1,698, the miscellaneous realisations being Rs. 36. The expenditure incurred on maintenance and repairs to the tank and canal was Rs. 492.

OLD WORKS.

132. The old bandharas and channels are grouped as under :—

1. The Upper Panjhra River Group including the Gondur Tank.
2. The Kan River Group.
3. The Burai River Group.
4. The Girna River Group.
5. The Bori River Group.

The area irrigated and the revenue derived from these works during the year as compared with the average of the preceding three years are shown in the following table :—

Area irrigated.		Revenue.					
		Irrigation share.		Land share.		Total.	
1931-32.	Average.	1931-32.	Average.	1931-32.	Average.	1931-32.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
8,646	9,448	65,163	60,749	13,195	12,761	78,358	73,510

The expenditure incurred on extensions and improvements and maintenance and repairs to these works amounted to Rs. 702 and Rs. 1,455 respectively. An expenditure of Rs. 812 was also incurred on river and rain gauge operations during the year.

SATARA DIVISION.

BORGAON DAM.

133. The total area irrigated during the year was 105 acres and the consolidated assessment was Rs. 563. The irrigation share of the revenue amounted to Rs. 338 and the balance of Rs. 225 represented the land assessment.

SAP NALLA.

134. The total area irrigated during the year was 201 acres and the consolidated assessment was Rs. 614. The irrigation share of the revenue amounted to Rs. 360 and the balance of Rs. 254 represented the land assessment.

SOUTHERN CIRCLE.

BELGAUM DIVISION.

135. There are about 540 second class irrigation works in this Division. Repairs to 23 tanks were carried out during the year at a cost of Rs. 13,625. In addition, an expenditure of Rs. 117 was incurred on surveys of the old tanks. The area irrigated during the year was 14,625 acres, the irrigation share of land revenue being Rs. 73,529.

DHARWAR DIVISION.

136. There are about 1,744 tanks in this Division. During the year, an expenditure of Rs. 33,528 was incurred on repairs to 32 tanks and a sum of Rs. 3,704 was spent on extensions and improvements. The area irrigated during the year was 50,144 acres and the irrigation share of land revenue amounted to Rs. 1,49,703 against 49,865 acres and Rs. 1,26,354 of the previous year. The total direct and indirect receipts amounted to Rs. 1,51,085 against Rs. 1,27,765 of the previous year and the working expenses were Rs. 67,504.

KANARA DIVISION.

137. There are 2,128 second class tanks scattered about in this Division. During the year, a sum of Rs. 9,937 was spent on repairs to 31 tanks and Rs. 3,421 were spent on surveying old tanks and preparing projects for their improvements. The area irrigated during the year was 28,647 acres and the irrigation share of land revenue amounted to Rs. 98,793.

RATNAGIRI DIVISION.

138. There are only three tanks in the Malwan Taluka in charge of this Division. An expenditure of Rs. 2,484 was incurred on special repairs to one of them. The area irrigated during the year was 1,109 acres, the irrigation share of revenue being Rs. 6,559. The gross assessed revenue after deducting remissions (Rs. 24) amounted to Rs. 6,559.

SECTION III.

IRRIGATION DEVELOPMENT AND RESEARCH CIRCLE.

SPECIAL IRRIGATION DIVISION.

139. In the Deccan when a large perennial canal is opened, widespread water-logging is liable to ensue due to percolation. Some of this water-logging dries out later, but the area of damage extends rapidly into the valleys, and unless steps are taken to set matters right, the later damage, consisting mainly of salt-efflorescence, becomes permanent. The seriousness of the menace was realised as early as 1888 and the controversy regarding the relative effect of channel losses and wasteful irrigation and the best methods to adopt to safeguard the land became yearly more acute. Various experiments were carried out at the instance of the Agricultural Department but by 1913 it was clear that all the methods tried had failed. It was eventually decided to open a Special Irrigation Division to investigate the question of canal development, especially as regards safeguarding the soil. In June 1916 the Division was formed and the work entrusted to it was " to contour the commanded area, make a careful survey and classification of the surface and sub-soil, select and mark out definite areas suitable for 'blocks' for perennial and other crops, design the drainage required, indicate suitable lines of communication, and centres for the establishment of crushing, grinding, refining and other machinery for trade puposes, and to make a study of the reclamation of waste lands and areas damaged by water-logging and salt-efflorescence and the growth of useful timber in such tracts and along the main canal". In short, research and investigation into all the problems relating to irrigation by actual experiment has been the sphere of work of this Division. The investigations coming within this sphere may be broadly grouped under 5 heads, viz. (*a*) irrigation, (*b*) irriculture or the interaction of irrigation and agriculture, (*c*) soil physics, (*d*) drainage and reclamation and (*e*) hydrodynamic research. The results of the more important of these investigations are published in Technical Papers from time to time.

140. The work done in the Division during the year under report may be classified under (1) soil survey and classification, (2) observation of sub-soil water levels, (3) drainage of lands damaged by water-logging and salt efflorescence, (4) formation and revision of blocks, (5) effluent irrigation, (6) irriculture at the Effluent Farm, (7) Baramati experimental salt area, (8) soil physical work, (9) hydrodynamic research. A brief account of the work done during the year under these heads is given below :—

(1) Soil Survey and Classification.

Demarcation of damaged areas has been reduced to a biennial basis, while soil and sub-soil surveys have been restricted to those cases for

which information is urgently required. The following table shows the work done on the demarcation of damaged areas :—

Canals.	Work commenced on.	Work completed on.	Remarks.
Nira Right Bank Canal.	1st January 1932 ..	31st July 1932.	
Nira Left Bank Canal ..	1st January 1931 ..	31st December 1931.	12", 15" and 18" M.I.B.* work also done.
Godavari Canals ..	31st July 1930 ..	31st July 1931 ..	12", 15" and 18" M.I.B.* work also completed.
Pravara Canals ..	1st January 1932 ..	31st July 1932 ..	12", 15" and 18" M.I.B.* work also commenced.

* Muram Iso-bath.

(2) Observation of Subsoil Water Levels.

The well-observation work has been continued biennially, the canals under observation being the Nira Right and Left Bank Canals, Godavari Canals and the Pravara Canals. The following table gives the number of wells observed on the different canals :—

Name of canal.	Work commenced on.	Work completed on.	No. of wells observed.	Remarks.
Nira Right Bank Canal ..	1st January 1932.	31st July 1932 ..	2,296	
Nira Left Bank Canal ..	1st January 1931.	31st December 1931.	1,060	
Godavari Canals ..	1st August 1931.	31st July 1932 ..	2,272	25 wells observed on up-stream of the Godavari Left Bank Canal to find out effect of rainfall, etc.
Pravara Canals ..	1st August 1930.	31st July 1931 ..	3,000	180 wells observed in the catchment of Nilonde and Kuran Tanks to find out the effect of percolation of water from the tank or wells in the catchments down below.

(3) Drainage of Lands damaged by Waterlogging and Salt-efflorescence.

The following technical questions were further investigated during the year under report :—

(*a*) Treatment of liquid mud with Calcium Chloride.

(*b*) Durability of various pipes used for drains in salt-affected soils.

(c) Investigation regarding massive Kankar (Man) and its utility as a drainage sub-soil.

(d) Reduction of canal leakage by means of puddle trenches and intercepting drains.

The drainage schemes under execution during the year were :—

Nira Left Bank Canal.

Hol, Murum, Karanja Drainage Scheme.
Distributary No. 26-C Drainage Scheme.
Malegaon Drainage Scheme.

Godavari Canals.

Kopargaon Drainage Scheme, Godavari Left Bank Canal.
Nimgaon Shirdi Drainage Scheme, Godavari Right Bank Canal.
Culvert No. 29 Drainage Scheme, Godavari Right Bank Canal.

Pravara Canals.

Nandur-Khandala Drainage Scheme.

Mutha Right Bank Canal.

Manjri Drainage Scheme.

Maintenance of drainage schemes was carried out for the following schemes :—

Nira Left Bank Canal.

	Cost of maintenance. Rs.
Culvert 28 Drainage Scheme	393
Culvert 29 Drainage Scheme	350
Distributary 24-25 Drainage Scheme ..	384
Hol, Murum, Karanja Drainage Scheme ..	1,913
Distributary 26-C Drainage Scheme ..	103
	3,143
Godavari Canals.	
Kopargaon Drainage Scheme	909
	4,052

The total expenditure incurred on drainage schemes during the year was Rs. 60,926 (excluding repairs) as against Rs. 39,581 of the previous year. Besides, there were several schemes under preparation.

(4) Formation and Revision of Blocks.

Applications for 20,338 acres of blocks were received on the Nira Left Bank Canal and 18,822 acres of them were sanctioned. The total block area sanctioned on the Nira Right Bank Canal up to the year under report

was 1,790 acres for Phaltan Section and 372 acres for Malsiras Section. New applications for blocks from 15th February 1932 were received for 1,200 acres for Phaltan Section and 400 acres for Malsiras Section. Applications were still coming in and it is expected that the total area of blocks in 1932 may be about 4,000 acres. The total area of block applications received on the Godavari Canals up to 15th February 1932 was 6,642 acres only. During the year under report fresh measurements for 86 acres of block on the Pravara Right Bank Canal and for 736 acres on the Pravara Left Bank Canal were carried out against applications for 88 and 1,118 acres respectively.

(5) Effluent Irrigation.

The average discharge of effluent pumped during the year on the Mutha Right Bank Canal was 6·61 cusecs of which 5·65 cusecs were utilised for irrigation. The remaining 0·96 cusec was disposed of on fallow land during the cold weather. The surplus effluent run to waste this year was double that of the previous year. The average proportion of "N" content in effluent was 3·71 parts per 100,000 parts of effluent by weight. This may be compared with 5·60 cusecs of effluent of the previous year with a strength of 3·72 parts of Nitrogen. The gross effluent revenue assessed during the year over the whole area was Rs. 49,663 for 5·65 cusecs of effluent of 3·71 strength. Besides, canal water was used to the extent of 14·82 cusecs for mixing with effluent. This gives (*a*) value per cusec discharge of canal water excluding pazar—Rs. 3,252 ; (*b*) including pazar—Rs. 3,582 and (*c*) value per cusec of effluent water—Rs. 7,412. This value of effluent is far less than that of the last year viz. Rs. 16,525 per cusec. The main reason for this is the reduction in the effluent rate.

(6) Irriculture at the Effluent Farm.

Experiments with regard to effluent as a manure and other irricultural experiments, for which this farm is intended, were continued during the year under report.

The toal expenditure on the farm during the year amounted to Rs. 13,215 and the total receipts to Rs. 10,595.

The following experiments were carried out in connection with sugarcane effluent irrigation—

(1) Dose experiments to ascertain the economical dose of effluent for cane.

(2) Coarse manure series to compare outturns with various types of green manures.

(3) Sugarcane variety experiments.

(4) Seasonal adsali plantation to ascertain the best month for planting adsali.

The following experiments were carried out in connection with sugarcane canal irrigation :—

(1) Water quantity experiments to ascertain the optimum quantity of water for cane.

(2) Interval experiments.

(3) Water-cum-manure experiments to study the interaction of water and manure and to ascertain the best combination of the two for optimum results.

(4) Treble green manure.

(7) Baramati Experimental Salt Area on the Nira Left Bank Canal.

This area which was excessively salt-affected and physically bad was acquired for carrying out reclamation experiments. The total area is 160 acres of which the reclaimed land is 110 acres. The total expenditure during the year was Rs. 15,894 and the total receipts amounted to Rs. 10,740. The low receipts were due to low rates on account of general depression. Crops were grown on a large scale in the area in suitable rotation for the sake of reclamation and maintenance of soil-tilth. The scheme of rotation after the preliminary leaching of salts and the test crop of shalu is—

(1) Treble green manuring.

(2) Sugarcane with 20 carts of F.Y.M. or 15 carts of F.Y.M. with 15 carts of trash, 150 lbs. of " N" as top-dressing being given in each case.

(3) Cotton or shalu.

(8) Soil Physical Work.

The following problems were investigated at the Effluent Research Laboratory :—

(1) Electrical method to determine Nitrogen in effluent.

(2) Transpiration experiments.

(3) Comparison of different methods to determine P^H value of soils.

(4) Tillering and growth of sugarcane.

(5) Brix of varieties.

Besides routine work and the research problems, mechanical analysis was made of silt samples and water samples received from the Hydrodynamic Research Stations at the Effluent Farm and Khadakvasla.

The following experiments were carried out in the Research Laboratory at Baramati :—

(1) Flow of water and movement of salts in soil.

(2) Flooding *versus* intermittent irrigation experiment to ascertain the theory underlying removal of alkali salts in drains under conditions of flooding and intermittent irrigation.

(3) Percolation experiments to study drainage from an alkaline or saline soil during flooding.

(4) Base exchange experiment.

(5) Pipe experiment to investigate the effect of salts on drainage pipes under various conditions.

(6) P^H (colorimetric) values were worked out for various plots in the salt area and contours were marked and correlated with the growth of sugarcane.

(7) Study of the soil irrigated by canal water.

(8) Field experiments with gypsum and other chemicals applied for improving soil tilth.

(9) HYDRODYNAMICAL RESEARCH WORK CARRIED OUT AT THE DISTRIBUTARY No. 5 (MUTHA RIGHT BANK CANAL) AND KHADAKVASLA (LAKE FIFE) STATIONS.

The following experiments were carried out during the year :—

(1) Experiments in connection with flumed falls.

(2) Reasons for scour below flumed falls and how it can be prevented.

(3) Silt control experiments with the full width model of the Lloyd Barrage at Sukkur.

(4) Experiments with standing wave pipe outlet.

(5) Experiments with Gibb modules.

(6) Energy of flow on a glacis fall.

(7) Experiments with the model of superpassage No. 2A and the concrete raft below the Nira Left Bank Canal.

(8) Experiments with the model of superpassage No. 8A of the Nira Left Bank Canal and the deck bridge downstream.

(9) Laboratory experiments to ascertain the conditions under which a pavement built on sand will fail and what occurs in a sand column under various pressure conditions and the critical head at which the sand begins to move.

141. The Bombay P. W. D. Technical Paper No. 42 was published containing notes on (1) flumed aqueducts, (2) remodelling an existing canal or distributary to pass an increased discharge, (3) afflux caused by heading up water at the regulators of a canal and the extent of backwater and (4) distribution of velocities in channels.

STATEMENT I-E.

STATEMENT

Statement of Area irrigated by Irrigation Works in the Bombay

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow	Lift.	Area irrigated.	Percentage of total area.
1	2	3	4	5	6	7	8	9
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
	PRODUCTIVE.							
	Southern Circle.							
1	Gadikeri Tank	*418	..	*418	*418	..	..	..
2	Mavinkop Tank	*403	..	*403	*403	..	..	..
	Central Circle.							
3	Ekruk Tank	(1,138) 1,383	(2,624) 2,520	(3,762) 3,903	3,780	123	..	..
4	Shahada Channel	(621) 136 *488	(797) 312 *518	.. 448 *1,006	1,454	..	62	4·95
	Total, Productive ..	1,519 *1,309	2,832 *518	4,351 *1,827	6,055	123	62	1·00
	UNPRODUCTIVE.							
	Northern Circle.							
5	Hathmati and Khari Cut Canals ..	1,4048 10,154	3,638 388	5,042 10,542	5,032 10,218	10 324	..	..
6	Wangroli Tank	1,093	226	1,319	1,312	7	..	..
7	Savli Tank	1,541	2	1,543	1,540	3	..	..
8	Saiat Tank	470	48	518	518	..	..	..
9	Tranza-Nagrama Tanks	19	2	21	14	7	..	..
10	Futelao Tank	..	30	30	30	..	..	..
	Irrigation Development and Research Circle.							
11	Nira Left Bank Canal ..	(19,476) 30,456	(27,640) 21,172	51,628	51,327	301	2,104	4·08
	Shetphal Tank	(2,541) 3,381	(2,919) 1,221	4,602	4,602	..	191	4·15
	Deccan Irrigation Circle							
12	Nira Right Bank Canal	(6,144) 6,397	(10,565) 13,812	20,209	20,201	8	314	64·36
13	Mhaswad Tank	(2,504) 2,835	(1,281) 1,441	4,276	4,276	..	..	..
14	Mutha Canals	(8,622) 9,555	(959) 1,265	10,820 *29	10,729	91	13	0·12
	Matoba Tank	(930) 1,010	(1,098) 1,745	2,755	2,755	..	1	0·04
15	Kasurdi Tank	(3) 3	(6) 44	47	47	..	..	..
16	Shirsuphal Tank	(288) 3.9	(602) ,22	1,041	1,041	..	3	0·29
17	Bhadalwadi Tank	(229) 244	(668 1,056	1,30	1,30	..	8	0·61

I-E.

Presidency, excluding Sind, during the year 1931-32.

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
..	..	..	..	..	..	..	..	16th January to 15th October.	16th October to 15th January.
..	..	..	..	..	..	..	..	Do.	Do.
15·71	20·41	11·48	14·45	72	129	99	182	15th February to 14th October.	15th October to 14th February.
4·29	9·26	4·29	9·26	144	86	144	86	15th June to 14th October.	15th October to 14th February.
..	..	..	..	..	..	..	..		
†175 / 98	69	†66 / 98	69	8·02 / 103·61	52·73 / ..	21·27 / 103·61	52·73 / ..	15th June to 15th November.	16th November to 14th February.
51·16	17·29	51·16	17·29	21·37	13·08	21·37	13·03		
76·39	..	76·39	..	20·17	..	20·17	..		
37·36	7·42	37·36	7·42	12·58	6·47	12·58	6·47	15th June to 14th November.	15th November to 14th February.
1	..	1	..	19	..	19	..		
..	5·73	..	5·73	..	5·23	..	5·23		
(b)370	(b)351	(b)287	(b)321	53	107	68	117	15th February to 14th October.	15th October to 14th February.
37	40	32	40	69	73	79	73		
456	535	218	267	(f)13	(f)20	(f)28	(f)40	15th February to 14th October.	15th October to 14th February.
55	66	55	66	(e)46	(e)2	(e)46	(e)20	Do.	Do.
169	128	(h)	(h)	(i)51	(i)7	(h)	(h)	Do.	Do.
8	8	8	8	110	135	110	135	Do.	Do.
..	..	..	..	..	..	..	..	Do.	Do.
(j) 4	3	4	3	(j) 72	201	72	201	Do.	Do.
3	3	3	3	76	223	76	223	Do.	Do.

STATEMENT

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow.	Lift.	Area irrigated.	Percentage of total area.
1	2	3	4	5	6	7	8	9
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*contd.*	Acres.	Acres.	Acres.	Acres	Acres.	Acres.	
	UNPRODUCTIVE—*contd.*							
	Deccan Irrigation Circle—contd.							
	Lake Beale—Darna Dam	(1)299	(1)163	(1)462	..	462	..	..
18	Godavari Right Bank Canal ..	(7,396) 8,896	(7,934) 1,350	10,246	10,219	27	902	8·80
	Godavari Left Bank Canal	(5,961) 6,322	(6,204) 1,080	7,402	7,305	97	1,003	13·55
19	Chankapur Tank—Girna Left Bank Canal	(784) 1,012	(3,676) 3,198	4,210	4,204	6	35	0·84
20	Kadwa River Works. Palkhed Canal ..	(938) 658	(1,023) 964	1,622	1,613	9	28	1·73
	Kadwa River Works. Ojhar-Tambat Canal	(591) 422	(620) 497	919	919	..	15	1·63
	Kadwa River Works. Wadali Canal ..	(477) 352	(596) 453	805	804	1	3	0·37
21	Parsul Tank	(115) 103	(485) 475	578	573	..	37	6·41
22	Pravara Right Bank Canal	(3,611) 4,239	(2,747) 1,642	5,881	5,880	1	747	12·70
	Pravara Left Bank Canal	(8,328) 13,300	(9,751) 3,863	17,163	17,002	161	1,183	6·89
23	Bhatodi Tank	(168) 202	(385) 557	759	749	10	..	..
	Central Circle.							
24	Koregaon Tank	24	463	487	487	..	..	..
25	Ashti Tank	(645) 685	(2,659) 2,540	3,225	3,223	2	..	..
26	Pathri Tank	10	936	946	910	36	..	..
27	Jamda Canals	(426) 522	(1,417) 1,558	2,080	2,080	..	..	..
28	Hartala Tank	..	(57) 64	64	64	..	..	..
29	Mhaswa Tank	..	(200) 207	207	203	4	..	..
30	Lower Panjhra River Works	(1,351) *1,076 261	(1,144) *163 1,004	*1,259 1,265	2,524	..	358	14·18
31	Krishna Canal	(3,379) 4,056	(755) 930	4,986	4,331	655	98	1·97
32	Revari Canal	(103) 127	(632) 785	912	911	1	19	2
33	Upper Man River Works	(781) 774	(846) 823	1,597	1,593	4	35	2
34	Yerla River Irrigation Works	(258) 237	(3,642) 3,538	3,775	3,745	30	78	2

I-E—*contd.*

Average discharges cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
..	..	..	..	..	..	..	..		
265	142	265	142	(e) 28	(e) 56	(e) 28	(e) 56	15th February to 14th October.	15th October to 14th February.
153	77	153	77	(e) 39	(e) 81	(e) 39	(e) 81		
74	63	74	63	(c) 11	58	11	58	15th June to 14th October.	Do.
39	30	39	30	(c) 24	34	24	34	Do.	Do.
11	8	11	8	(c) 54	78	54	78	Do.	Do.
10	11	10	11	(c) 48	54	48	54	Do.	Do.
1	3	1	3	115	162	115	162	15th February to 14th October.	Do.
(d) 74	(d) 77	(d) 66	(d) 70	(e) 49	(e) 36	(e) 55	(e) 39	Do.	Do.
(d) 277	(d) 252	(d) 229	(d) 230	(e) 30	(e) 39	(e) 36	(e) 42	Do.	Do.
2	1	2	1	(k) 84	(k) 385	(k) 84	(k) 385	Do.	Do.
..	2·86	..	2·86	..	162	..	162	15th February to 14th October.	15th October to 14th February.
2·07	13·73	2·07	13·73	311	193	311	193	Do.	Do.
..	4·42	..	4·42	..	212	..	212	Do.	Do.
24·16	37·93	24·16	37·93	17	37	17	37	15th June to 14th October.	Do.
..	0·29	..	0·29	..	196	..	196	Do.	Do.
0·14	2·82	0·14	2·82	..	70	..	70	Do.	Do.
4·99	2·32	4·99	2·32	270	494	270	494	Do.	Do.
50·21	65·52	50·21	65·52	67	12	67	12	16th February to 15th October.	16th October to 15th February.
1·97	5·53	1·97	5·53	52	114	52	114	Do.	Do.
3·18	3·51	3·18	3·51	245	241	245	241	Do.	Do.
10·44	29·02	10·44	29·02	25	125	25	125	Do.	Do.

STATEMENT

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow.	Lift.	Area irrigated.	Percentage of total area.
1	2	3	4	5	6	7	8	9
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*concld.*	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
	UNPRODUCTIVE—*concld.*							
	Central Circle—concld.							
35	Chikhli Canal	(154) 131	(139) 92	223	215	8	28	12
36	Maini Tank	(437) 40	(1,385) 1,351	1,391	1,364	27	..	..
	Southern Circle.							
37	Gokak Canal, First Section and Storage Works.	†4,286	1,859	6,145	5,888	257	..	..
38	Muchkundi Tank	..	..	..	..	..	..	..
39	Dambal Tank	14 *143	52 ..	66 *143	66 *143	..	..	..
40	Medleri Tank	43	4	47	47	..	..	..
41	Madag Tank	264	221	485	485	..	..	..
42	Asundi Tank	11 ..	32 *190	43 *190	42 *190	1	..	..
43	Dharma Canal	441 *5,227	.. ..	441 *5,227	441 *5,227	..	..	..
	Total, Unproductive ..	116,612 *6,466	77,513 *353	194,125 *6,819 ‡29	198,394	2,550	7,203	3·58
	Grand Total,	118,131 *7,775	80,345 *871	198,476 *8,646 ‡29	204,449	2,673	7,265	3·51

Note.—The bold figures in brackets represent areas actually irrigated during the respective seasons and the duties have crops are irrigated To obtain correct duties therefore these crops have to be added to the rabi areas.

(*b*) The difference between the discharges "At head" and "utilized" is due to canal water having been let into

(*c*) Low duties are due to scattered nature of irrigation. There is no irrigation in the first few miles of each

(*d*) The difference between the discharge at head and utilized is due to water having been run to waste through

(*e*) The duties on the Godavari and Pravara canals are low, due to higher proportion of perennial crops and also to

(*f*) The duties on the Nira Right Bank Canal appear low as all the regulators have not yet been constructed. and as the supply is much in excess of the demand water runs to waste.

(*h*) Figures of "utilized" discharge are not available as the quantity let into the Matoba tank could not be accurately

(*i*) The low duties are due to high proportion of perennial crops to the seasonal crops. Besides a large quantity and also for industrial purposes. Water was also run to waste through the scouring sluices.

(*j*) There is generally no supply in the tanks in the hot weather season. Even during the monsoon and rabi seasons which the channels were in flow has therefore been taken for purposes of calculating average discharge and

(*k*) The high duties on the Bhatodi tank during the rabi season are due to concentrated irrigation.

(*l*) This represents area in the basin of Lake Beale given out for cultivation.

* Area under consolidated assessment.

† 109 cusecs were supplied to Khari Cut Canal through Bhojwa channel and Bokh feeder for irrigation.

‡ This represents area indirectly irrigated by underground percolation from the Mutl a Left Bank Ca: al.

§ Includes 4 acres for hot season.

I-E—*concld.*

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
7·64	6·99	7·64	6·99	20	20	20	20	16th February to 15th October.	16th October to 15th February.
1·24	9·24	1·24	9·24	34	150	34	150	Do.	Do.
49·94	58·75	49·94	58·75	81·63	69·09	81·63	69·09	15th February to 14th October.	15th September to 14th January or 15th October to 14th February.
..	..	..	..	..	..	..	..	Do.	15th October to 14th February.
1·40	2·27	1·40	2·27	112·14	22·91	112·14	22·91	16th January to 15th October.	16th October to 15th January.
2·56	2·58	2·56	2·58	16·79	1·55	16·79	1·55	Do.	Do.
8·66	20·16	8·66	20·16	30·49	10·91	30·49	10·91	Do.	Do.
1·86	3·21	1·86	3·21	5·91	69·16	5·91	69·16	Do.	Do.
90·86	37·55	90·86	37·55	62·38	..	62·38	..	Do.	Do.
..	..	..	..	..	..	..	..		
..	..	..	..	..	..	..	..		

been calculated on these figures. In the rabi season in addition to pure rabi crops perennial and eight months'

Shetphal tank and run to waste through scouring sluices.

distributary and branch of the Mhaswad Canal.

scouring sluices.

scattered irrigation and weed trouble which cause heavy loss in transit.

Besides the irrigation is scattered and there are great losses in transit. Water was also utilised for testing the canal

measured.

of water was supplied for drinking and domestic purposes to the Poona City and Cantonment and suburbs of Poona.

the channels are closed for days together due to rainfall and other causes. The actual number of days on duties.

STATEMENT I-F.

Statement showing water-rates per acre in force during 1931-32 on Irrigation Works in the Bombay Presidency excluding Sind.

No.	Name of Work.	Water-rates. Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.	Single watering.	Occupier's rate.	Owner's rate.	Water advantage.
	Works for which Capital and Revenue Accounts are kept.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	PRODUCTIVE.											
	Southern Circle.											
1	Gadikeri Tank [a] ..	..	..	..	..	..	..	..	..			
2	Mavinkop Tank [a] ..	..	..	..	..	..	..	..	..			
	Central Circle.											
3	Ekruk Tank a^{13} ..	..	A 35 B 17½	8	3	5	7	..	1 (b^6)	*Nil.*	*Nil.*	*Nil.*
4	Shahada Channel a ..	..	a^{14}	7½	2½	5	7½	..	a^{14} 1½ **2½			
	UNPRODUCTIVE.											
	Northern Circle.											
5	Hathmati Canal a^1 ..	..	(b^4)	..	D 3 E 1	3	6	..	2			
	Khari Cut Canal a^1	..	(b^4)	..	D 7 E 1	5	6	..	1 **2			
6	Wangroli Tank a^2 ..	..	(b^4)	6½	D 5 E 2½	4	6	..	1½			
7	Savli Tank a^4 ..	..	(b^4)	8	D 5 E 4	4	6	..	1½			
8	Saiat Tank a^5 ..	..	(b^4)	6½	D 4 E 2½	4	6	..	1½			
9	Tranza Nagrama Tanks. a^3	..	(b^4)	6	D 4 E 2	4	6	..	1			
10	Futelao Tank a^6 ..	..	(b^1)	..	D 4 E 2	a^7 3 a^8 2	Provisional 8	..	a^9 1	*Nil.*	*Nil.*	*Nil.*
	Irrigation Development and Research Circle.											
11	Nira Left Bank Canal. Shetphal Tank (*b*) ..	§20 ¶16	M 45 C 66 B 22½ K 15	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*)2			
	Deccan Irrigation Circle.											
12	Nira Right Bank Canal (*b*).	§20 ¶16	M 45 C 66 B 22½ K 15	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*) 2			
13	Mhaswad Tank (*d*) ..	..	X	8	3	5	6	..	(*f*) 2			

STATEMENT I-F—*contd.*

No.	Name of Work.	Water-rates.										
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.	Single watering.	Occupier's rate.	Owner's rate.	Water advantage.
	Works for which Capital and Revenue Accounts are kept— *contd.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	UNPRODUCTIVE—*contd.*											
	Deccan Irrigation Circle —contd.											
14	Mutha Canals and Matoba Tank (*c*)—											
	Sugarcane under the Mutha Canals within the Poona City and Suburban Municipal and Cantonment limits or within one mile of those limits.	..	50	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*) 2			
	On all remaining land commanded by both the canals.	..	M 45							*Nil.*	*Nil.*	*Nil.*
	Pan gardens ..	..	C 66									
	Perennial crops other than sugarcane and pan gardens.	..	B 22½									
	Pomegranates ..	..	15									
	Matoba Tank ..	..	(*g*)									
15	Kasurdi Tank (*d*) ..	..										
16	Shirsuphal Tank (*d*)..	..	X	8	3	5	6	..	(*f*) 2	*Nil.*	*Nil.*	*Nil.*
17	Bhadalvadi Tank (*d*)..	..										
18	Godavari Right Bank Canal (*b*).	§20 ¶16	M 45 C 66	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*) 2			
	Godavari Left Bank Canal (*b*).		B 22½ K 15									
19	Chankapur Tank— Girna Left Bank Canal (*d*).	..	X	8	3	5	6	..	(*f*) 2			

STATEMENT I-F—*contd.*

No.	Name of Work.	Water-rates. Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.	Single watering.	Occupier's rate.	Owner's rate.	Water advantage.
	Works for which Capital and Revenue Accounts are kept— *contd.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	UNPRODUCTIVE—*contd.* *Deccan Irrigation Circle* —concld.											
20	Kadwa River Works (*d*)— Waghad Tank .. Palkhed Canal .. Ojhar-Tambat Canal .. Wadali Canal ..	.. ..	X	8	3	5	6	..	(*f*) 2	*Nil.*	*Nil.*	*Nil.*
21	Parsul Tank (*d*) ..	..										
22	Pravara Canals (*b*) ..	§20 ¶16	M 45 C 66 B 22½ K 15	Light 8 Med. 12	Light 3 Med. 4½	Light 5 Med. 7½	Light 7 Med. 10½	..	(*e*) 2			
23	Bhatodi Tank (*d*) ..	..	X	8	3	5	6	..	(*f*) 2			
	Central Circle.											
24	Koregaon Tank a^{12} ..	..	A 32 B 16	7	3	4	6	..	(b^6) 1			
25	Ashti Tank a^{13} ..	..	A 32 B 16	7	3	4	6	..	(b^6) 1			
26	Pathri Tank a^{13} ..	..	A 32 B 16	7	3	4	6	..	(b^6) 1			
27	Jamda Canals a^{16} ..	..	B 10 A 16	5 a^{17}8	2	3	5	..	a^{11}1			
28	Hartala Tank a^{16} ..	..	B 9 A 12	5 a^{17}7	2	3	4	..	1			
29	Mhasva Tank a^{16} ..	..	B 9 A 12	5 a^{17}7	2	3	4	..	a^{14} 1			
30	Lower Panjhra River Works. a^{12}	..	A 30 B 15	8	3	5	7	..	(b^6) 1½ **3			
31	Krishna Canal a^{15} ..	..	A 32 B 16	8	3	5	8	..	a^{16}1			
32	Revari Canal a^{15} ..	..	A 24 B 12	6	2	4	6	..	a^{14}1			
33	Upper Man River Works. a^{15}	..	A 24 B 12	6	2	4	6	..	a^{14}1	*Nil.*	*Nil.*	*Nil.*
34	Yerla River Irrigation Works. a^{15}	..	A 26 B 13	6½	2	4½	6½	..	a^{14}1			
35	Chikhli Canal a^{15} ..	..	A 24 B 12	6	2	4	6	..	a^{14}1			
36	Maini Tank a^{15} ..	..	A 24 B 12	6	2	4	6	..	a^{11}1			

STATEMENT I-F—*concld.*

No.	Name of Work.	Water-rates.								Occupier's rate.	Owner's rate.	Water advantage.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.	Single watering.			
	Works for which Capital and Revenue Accounts are kept —*concld.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	UNPRODUCTIVE —*concld.*											
	Southern Circle.											
37	Gokak Canal, 1st Section and Storage Works. (*u*)	..	(b^1) 27½ (b^2) 20	10	4	6	15*	..	1½	*Nil.*	*Nil.*	*Nil.*
38	Muchkundi Tank (*s*)	..	8	4	1	1	4	..	1			
39	Dambal Tank (*w*)	..	(*x*) 14	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
40	Medleri Tank (*w*)	..	(*x*) 14	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
41	Madag Tank (*w*)	..	(*x*) 12	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
42	Asundi Tank (*w*)	..	(*x*) 14	(*y*) 6 (*z*) 7½	(*m*) 4	(*n*) 4½	(*l*) 7	..	(*j*) 1 (*k*) 2			
43	Dharma Canal (a^{10})	..	..	..	4½	..	..	..	(*j*) 1 (*k*) 2			

NOTE.—(1) For lift irrigation in the Deccan Irrigation Circle and the Irrigation Development and Research Circle, the orders contained in G. R. No. 4771/27, dated 23rd December 1931, are that lift from Budkis should not be allowed at all in areas under the flow command of a canal and that in other areas it may be allowed only when the supply of water for irrigation is in excess of the demand at half the flow rates for all crops other than sugarcane for which full rate should be charged.

(2) For lift irrigation half the ordinary rates are charged in other circles.

(3) Double the ordinary rates are charged as penal rates for taking water without permission.

(4) Leakage or percolation rates are the same as ordinary rates.

(5) Water-rates for non-irrigational purposes are charged at the rates sanctioned by Government in each case subject to the minimum rates fixed in G. R. No. 851, dated the 7th April 1924.

(6) In the D. I. C. and the I. D. and R. C., monsoon or two seasonal crops which take pre-seasonal waterings between the 25th April and the break of the monsoon are charged the following water-rates per acre according to the date of first watering applied for and sanctioned, *vide* G. R. No. 5602/27, dated 9th December 1931 :—

From the date	Rate for light type of crops. Rs.	Rate for medium type of crops. Rs.
25th April	5	7½
5th May	4	6
15th May	3	4½

(7) A reserve rate of Rs. 3 per acre as a minimum rate has been sanctioned for lands let out for cultivation in the basin of Lake Benlo—*vide* G. R. No. 2484, dated 12th June 1925.

(8) A flat rate of Rs. 2-8-0 per acre of culturable area has been sanctioned up to 14th February 1934 for the supply of water from the irrigation channel of Sangur village to the irrigators who have not suffered in any way from land acquisition for the Lloyd Dam—*vide* G. R. No. 1849/27, dated 5th January 1932.

* Lands wholly assessed at consolidated rates.

† Block rate for blocks in 1: 3 proportion of sugarcane.

‡ Block rate for blocks in 1: 4 proportion of sugarcane.

** For single waterings crops for which no application for irrigation throughout the season was previously submitted.

A—For sugarcane and pan gardens.

B—For perennial crops other than sugarcane.

C—For pan gardens for the whole year. If water is given for part of the year the charge will be on the basis of thrice the maximum seasonal rate for the seasons concerned—*vide* G. R. No. 5102/27, dated 4th December 1931.

D—For rice.

E—For monsoon crops other than rice.

K—For pomegranates.

M—For Sugarcane.

X—For sugarcane and pan gardens double the seasonal rates and for other perennial crops single seasonal rates shall be charged.

(b) Rate for sugarcane and block rates to be in force up to 14th February 1933—*vide* G. R. No. 5602/27, dated 9th December 1931. The corresponding rates for the year ending 14th February 1934 are Rs. 45 and Rs. 19 and Rs. 16, respectively—*vide* G. R. No. 5602/27, dated 28th November 1932. The rates for crops other than sugarcane are to be in force from 15th February 1931 to 14th February 1934—*vide* G R. No. 5602/27, dated 9th December 1931.

(c) Rates for sugarcane within the Poona City and Suburban Municipal and cantonment limits or within one mile of those limits and for sugarcane in other areas to be in force up to 14th February 1934—*vide* G. Rs. Nos. 5602/27, dated 9th December 1931 and dated 28th November 1932. The rates for crops other than sugarcane to be in force from 15th February 1931 to 14th February 1934—*vide* G. R. No. 5602/27, dated 9th December 1931.

(d) Rates sanctioned in G. R. No. 5602/27, dated 9th December 1931, to be in force with effect from 15th February 1931 to 14th February 1934.

(e) The single-watering rate applies to pre-seasonal and post-seasonal waterings to sanctioned crops; in other cases full seasonal rate shall ordinarily be charged whether one or more waterings be taken.

(f) The single-watering rate of Rs. 2 is for one watering only. If two or more waterings are taken full seasonal rate shall be charged.

(g) For sugarcane the short-term cane rates as per scale sanctioned in G. R. No. 8670, dated 13th January 1927 (which may be in force on major irrigation works), for pan gardens the same rate as on the Mutha Canals and for other perennials single medium seasonal rates will be charged—*vide* G. R. No. 5602/27, dated 9th December 1931.

(j) From 15th June to 15th October.

(k) From 16th October to 14th June.

(l) From 15th February to 15th June.

(m) From 15th June to 15th October or 15th July to 30th November.

(n) From 15th October to 15th February.

(s) In force up to 15th February 1932—*vide* G. R. No. 334, dated 17th June 1926. With effect from 16th February 1932 the following rates came into force—*vide* G. R. No. 5459/27, dated 13th May 1931:—

Perennial.	Two-seasonal.	Monsoon.	Rabi.	Hot weather.	Single-watering.
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
10	5	2	2	5	1

The above rates are to remain in force up to 15th February 1937.

(u) In force up to 14th February 1932—*vide* G. R. No. 6243, dated 7th February 1927. With effect from 15th February 1932 and up to 14th February 1934 the following rates are in force—*vide* G. R. No. 466/27, dated 3rd March 1932:—

Perennial. 12 months.	Perennial 8 months.	Two-seasonal.	Monsoon.	Rabi.	Hot weather.	Single-watering.
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
27½	20	8	3	5	15	2

(w) Rates sanctioned for the period of five years ending 31st March 1935—*vide* G. R. No. 6095, dated 22nd October 1924 and G. R. No. 3187/27, dated 22nd August 1929.

(x) For sugarcane, betel leaves, etc., for 12 months.

(y) For eight months from 15th June to 15th February.

(z) For eight months from 15th October to 15th June or 1st August to 31st March.

a Rates sanctioned in G. Rs. Nos. 836, dated 8th October 1923, 836, dated 23rd April 1924, 836, dated 29th July 1924, and 1590/27, dated 19th June 1928, are to be in force up to 14th February 1934.

a[1] Rates sanctioned in G. R. No. 4855, dated 23rd December 1927, are to be in force up to 14th February 1937—*vide* G. R. No. 5956/27, dated 22nd October 1931.

a[2] Rates sanctioned in G. Rs. Nos. 825, dated 30th August 1924, and 825, dated 1st November 1926, are to be in force up to 15th June 1935—*vide* G. R. No. 2861/27, dated 4th July 1929.

a[3] Rates sanctioned in G. Rs. Nos. A-I-1128, dated 13th May 1910, and 679/27, dated 25th November 1927, are to be in force up to 31st July 1933.

a[4] Rates sanctioned in G. Rs. Nos. A-I-1335, dated 14th June 1910, 815, dated 18th February 1925, and 815, dated 13th November 1926, are to be in force up to 15th June 1935 excepting those for kharif rice and single watering which were raised to Rs. 5 and Rs. 1½ respectively with effect from 16th June 1930—*vide* G. R. No. 2594/27, dated 19th June 1929.

a[5] Rates sanctioned in G. Rs. Nos. A-I-309, dated 15th February 1911, 5412, dated 15th December 1926, and 2835/27, dated 4th October 1929, are to be in force up to 15th June 1935.

a[6] Rates sanctioned in G. O. No. A-I-9945, dated 12th October 1917, are to be in force up to 31st March 1935 *vide* G. R. No. 1691/27, dated 29th April 1929.

a[7] For ordinary rabi.

a[8] For restorative crops grown after rice.

a[9] In either kharif or rabi season.

a[10] Rates sanctioned in G. R. No. 293/27 of 9th August 1927 are to be in force up to 31st March 1937—*vide* G. R. No. 293/27, dated 14th February 1931.

a[12] Rates sanctioned in G. R. No. 7736, dated 30th October 1925, are to be in force up to 14th February 1933—*vide* G. R. No. 5602/27, dated 9th December 1931.

a[13] Rates in force up to 15th February 1934—*vide* G. Rs. Nos. 6529, dated 17th January 1925, and 1912/27, dated 27th July 1928 and 9th June 1930.

a[14] For sugarcane and pan gardens double the ordinary rates are charged.

a[15] In force up to 15th February 1933—*vide* G. O. No. A-I-16033, dated 8th December 1919—*vide* G. R. No. 3151/27, dated 3rd January 1930 and G. R. No. 5602/27, dated 9th December 1931.

a[16] Rates in force till 31st March 1933—*vide* G. R. No. 5602/27, dated 9th December 1931.

a[17] Water rate for late eight months, *i.e.*, from 15th October to 14th June.

(b[1]) Rate for perennial 12 months.

(b[7]) Rate for perennial 8 months.

(b[4]) Single seasonal rates are charged—*vide* G. R. No. 3343/27, dated 8th October 1929.

(b[6]) For sugarcane the single-watering rate is Rs. 2 with effect from 15th February 1932—*vide* G. M. No. 6275/27-I.B., dated 23rd February 1932.

STATEMENT G

STATEMENT

Statement showing Areas and Water-rate Assessments in the Bombay of classification adopted in fixing

No.	Name of Work.	Perennial in blocks.		Perennial outside blocks.					
				Heavy.*		Medium.*		Total.	
		Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
	PRODUCTIVE.								
	Southern Circle.								
1	Gadikeri Tank†	..	..	..	..	..	..	..	..
2	Mavinkop Tank †	..	..	..	..	..	..	..	..
	Central Circle.								
3	Ekruk Tank	..	..	..	..	..	..	124	4,253
4	Shahada Channel	..	..	..	..	..	..	37	607
	Total, Productive ..	..	..	..	..	..	..	161	4,860
	Average rate ..	..	..	..	..	..	..	..	30·09
	UNPRODUCTIVE.								
	Northern Circle.								
5	Hathmati and Khari Cut Canals ..	..	..	..	..	..	..	..	..
6	Wangroli Tank	..	..	..	..	..	..	..	..
7	Savli Tank	..	..	..	..	..	..	..	..
8	Saiat Tank	..	..	..	..	..	..	..	..
9	Tranza Nagrama Tanks ..	..	..	..	..	..	..	..	..
10	Futelao Tank	..	..	..	..	..	..	..	..
	Irrigation Development and Research Circle.								
11	Nira Left Bank Canal and Shetphal Tank	20,468	3,27,153	538	10,816	4,264	78,503	4,802	89,324
	Deccan Irrigation Circle.								
12	Nira Right Bank Canal ..	63	23,831	621	11,575	58	838	679	12,453
13	Mhaswad Tank	..	..	57	505	60	275	117	780
14	Mutha Canals ‡	..	..	3,992	1,09,665	1,762	36,650	5,754	1,46,316
	Mateba Tank	..	..	610	9,361	85	633	695	9,999

* The classification of crops into "heavy" "medium" and "light" varieties has been introduced only

† The area under this tank is wholly under consolidated assessment.

‡ Details of heavy perennials under the Mutha Canals:—

	Area.	Assessment.
	Acres.	Rs.
(1) Within the Poona City, Suburban and Cantonment limits and within one mile of these limits	427	14,174
(2) On the remaining land commanded by Mutha canals	3,559	95,232
(3) Pan gardens wherever situated throughout the Mutha canals ..	6	260
Total ..	3,992	1,09,666

G.

Presidency, excluding Sind, during 1931-1932, according to the system the Scale of Water-rates.

Two Seasonal.						Monsoon—4 Months.					
Medium.*		Light.*		Total.		Medium.*		Light.*		Total.	
Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	865	2,595
..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	865	2,595
..	..	..	..	..	..	..	..	..	..	..	3·00
..	..	..	..	..	..	..	..	..	..	11,554	69,215
..	..	..	..	..	..	..	..	..	..	940	4,830
..	..	..	..	..	..	..	..	..	..	1,541	7,740
..	..	..	..	..	..	..	..	..	..	470	1,966
..	..	..	..	..	..	..	..	..	..	17	63
..	..	..	..	..	..	..	..	..	..	..	..
559	6,708	2,741	21,920	3,300	28,628	20	90	4,472	13,531	4,492	13,621
332	1,694	418	1,578	750	3,272	2	15	4,985	10,112	4,937	10,127
..	..	..	..	..	..	..	..	2,156	6,537	2,156	6,537
645	7,765	146	1,176	791	8,941	98	475	2,847	8,858	2,945	9,333
25	303	55	440	80	743	6	27	203	614	209	641

in the Deccan Irrigation and Irrigation Development and Research Circles.

STATEMENT

No.	Name of Work.	Rabi—4 Months.					
		Medium.*		Light.*		Total.	
		Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
		Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.						
	PRODUCTIVE.						
	Southern Circle.						
1	Gadikeri Tank†	..	..	..	..	..	....
2	Mavinkop Tank†	..	..	..	..	..	....
	Central Circle.						
3	Ekruk Tank	..	..	..	..	2,001	10,286
4	Shahada Channel	..	..	..	..	309	1,577
	Total, Productive ..	..	..	..	..	2,310	11,863
	Average rate ..	..	..	..	..	..	5·13
	UNPRODUCTIVE.						
	Northern Circle.						
5	Hathmati & Khari Cut Canals ..	..	..	..	..	4,026	11,691
6	Wangroli Tank	..	..	..	..	226	941
7	Savli Tank	..	..	..	..	2	10
8	Saiat Tank	..	..	..	..	48	186
9	Tranza Nagrama Tanks.. ..	..	..	..	..	2	5
10	Futelao Tank	..	..	..	..	30	91
	Irrigation Development and Research Circle.						
11	Nira Left Bank Canal & Shetphal Tank	2,046	15,345	18,799	93,995	20,845	1,09,340
	Deccan Irrigation Circle.						
12	Nira Right Bank Canal	851	3,339	10,570	26,319	11,421	29,658
13	Mhaswad Tank	..	..	1,242	6,208	1,242	6,208
14	Mutha Canals	190	1,444	412	2,097	602	3,541
	Matoba Tank	273	2,055	1,466	7,382	1,739	9,437

* The classification of crops into "heavy" "medium" and "light" varieties has been introduced only in the
† The area under this tank is wholly under consolidated assessment.
‡ The column "Miscellaneous" represents areas sanctioned and assessed but not irrigated as well as areas under
cannot be properly classified.
§ An area of 29 acres was indirectly irrigated by underground percolation from the Mutha Left Bank Canal.
|| Exclusive of 1,006 acres of mamul bagait area.

G—*contd.*

Hot weather—4 Months.						Miscellaneous ‡		Grand Total.	
Medium.*		Light.*		Total.					
Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	228	1,596	685	2,801	3,903	21,531
..	..	..	..	99	349	3	22	448‖	2,555
..	..	..	..	327	1,945	688	2,823	4,351	24,086
..	..	..	..	..	5·95	..	4·10	..	5·53
..	..	..	..	4	7	..	..	15,584	80,913
..	..	..	..	153	504	..	..	1,319	6,275
..	..	..	..	..	..	..	..	1,543	7,750
..	..	..	..	2	5	..	..	518	2,152
..	..	..	..	..	..	..	..	21	73
..	..	..	..	..	..	..	..	30	91
..	..	28	196	28	196	2,295	8,079	56,230	5,76,341
9	35	335	773	344	808	1,398	3,680	20,209	83,889
..	..	270	1,395	270	1,395	491	1,976	4,276	16,896
83	583	35	244	118	827	610	1,573	10,820	1,70,531
30	142	..	..	30	142	2	6	2,755	20,968

Deccan Irrigation and Irrigation Development and Research Circles.

298 528

penalties for waste of water, etc., and land insufficiently irrigated besides the areas of miscellaneous crops which it cannot be classified in respect of different crops. The revenue derived therefrom was Rs. 52.

STATEMENT

No.	Name of Work.	Perennial in blocks.		Perennial outside blocks.					
				Heavy.*		Medium.*		Total.	
		Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
		Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*contd.*								
	UNPRODUCTIVE—*contd.*								
	Deccan Irrigation Circle—contd.								
15	Kasurdi Tank	..	..	..	..	..	..	..	..
16	Shirsuphal Tank	..	..	45	514	97	544	142	1,058
17	Bhadalwadi Tank	..	..	108	1,373	3	14	111	1,387
18	Godavari Right Bank Canal ..	6,553	1,28,684	161	4,637	354	7,033	515	11,670
	Godavari Left Bank Canal ..	5,664	1,10,598	14	371	153	3,287	167	3,658
19	Chankapur Tank—Girna Left Bank Canal	..	..	489	13,963	89	651	578	14,614
20	Kadwa River Works—Palkhed Canal ..	..	..	162	5,010	55	464	217	5,474
	Kadwa River Works—Ojhar Tambat Canal..	..	..	172	5,474	43	291	215	5,765
	Kadwa River Works—Wadali Canal ..	..	..	143	4,038	33	216	176	4,254
21	Parsul Tank	..	..	1	28	19	116	20	144
22	Pravara Right Bank Canal ..	2,600	50,638	226	3,673	514	10,246	740	13,919
	Pravara Left Bank Canal ..	8,297	1,60,960	4,536	1,09,256	524	10,114	5,060	1,19 370
23	Bhatodi Tank	..	..	..	..	10	85	10	85
	Central Circle.								
24	Koregaon Tank	..	..	..	..	..	..	..	..
25	Ashti Tank	..	..	..	..	..	..	53	1,366
26	Pathri Tank	..	..	..	..	..	..	..	..
27	Jamda Canals	..	..	..	..	..	..	101	1,543
28	Hartala Tank	..	..	..	..	..	..	..	..
29	Mhaswa Tank	..	..	..	..	..	..	..	..
30	Lower Panjhra River Works	..	..	..	..	..	..	129	2,124
31	Krishna Canal	..	..	..	..	..	..	2,298	67,370
32	Revari Canal	..	..	..	..	..	..	79	1,498
33	Upper Man River Works ..	..	..	..	..	..	..	11	293
34	Yerla River Irrigation Works ..	..	..	..	..	..	..	68	853
35	Chikhli Canal	..	..	..	..	..	..	22	318
36	Moini Tank	..	..	..	..	..	..	70	449

* The classification of crops into "heavy" "medium" and "light" varieties has been introduced only in the

G—*contd.*

Two Seasonal.						Monsoon—4 months.					
Medium.*		Light.*		Total.		Medium.*		Light.*		Total.	
Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
..	..	..	..	..	..	..	..	3	10	3	10
..	..	149	1,210	149	1,210	..	..	88	281	88	281
..	..	120	962	120	962	..	..	61	185	61	185
123	1,450	6	50	129	1,500	..	..	199	597	199	597
101	1,215	..	..	101	1,215	6	20	23	67	29	87
..	..	41	469	41	469	..	..	165	347	165	347
..	..	704	5,227	704	5,227	..	..	17	38	17	38
..	..	373	2,772	373	2,772	..	..	3	7	3	7
..	..	297	2,193	297	2,193	..	..	4	8	4	8
..	..	10	103	10	103	..	..	85	312	85	312
40	484	113	905	153	1,389	1	4	639	1,966	640	1,970
55	660	59	482	114	1,142	1	4	1,000	3,033	1,001	3,037
..	..	19	89	19	89	..	..	200	598	200	598
..	..	..	..	24	170	..	..	..	..	..	..
..	..	..	..	643	4,480	..	..	..	..	3	24
..	..	..	..	11	74	..	..	..	..	..	..
..	..	..	..	279	1,432	..	..	..	..	11	24
..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	113	903	..	..	..	..	..	..
..	..	..	..	1,587	12,712	..	..	..	..	236	762
..	..	..	..	86	595	..	..	..	..	1	2
..	..	..	..	70	301	..	..	..	..	704	1,554
..	..	..	..	144	487	..	..	..	..	118	324
..	..	..	..	106	654	..	..	..	..	42	124
..	..	..	..	..	..	..	..	..	..	9	18

Deccan Irrigation and Irrigation Development and Research Circles.

STATEMENT

No.	Name of Work.	Rabi—4 Months.					
		Medium.*		Light.*		Total.	
		Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
		Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*contd.*						
	UNPRODUCTIVE—*contd.*						
	Deccan Irrigation Circle—contd.						
15	Kasurdi Tank	..	..	7	35	7	35
16	Shirsuphal Tank	..	..	654	3,393	654	3,393
17	Bhadalwadi Tank	..	..	995	5,054	995	5,054
18	Godavari Right Bank Canal ..	69	525	668	3,376	737	3,901
	Godavari Left Bank Canal ..	111	845	161	814	272	1,659
19	Chankapar Tank—Girna Left Bank Canal	..	..	3,057	13,601	3,057	13,601
20	Kadwa River Works. Palkhed Canal ..	..	..	102	478	102	478
	Kadwa River Works. Ojhar Tambat Canal ..	..	..	32	134	32	134
	Kadwa River Works. Wadali Canal ..	..	..	123	609	123	609
21	Parsul Tank	..	..	435	1,921	435	1,921
22	Pravara Right Bank Canal ..	120	893	1,408	7,034	1,528	7,927
	Pravara Left Bank Canal ..	368	2,777	2,050	10,421	2,418	13,198
23	Bhatodi Tank	..	..	525	2,530	525	2,530
	Central Circle.						
24	Koregaon Tank	..	..	..	..	463	1,945
25	Ashti Tank	..	..	..	..	2,482	10,576
26	Pathri Tank	..	..	..	..	935	3,831
27	Jamda Canals	..	..	..	..	1,317	4,689
28	Hartala Tank	..	..	..	..	63	194
29	Mhaswa Tank	..	..	..	..	197	684
30	Lower Panjhra River Works ..	..	..	..	..	971	5,118
31	Krishna Canal	..	..	..	..	832	4,590
32	Revari Canal	..	..	..	..	745	3,067
33	Upper Man River Works ..	..	..	..	..	812	3,523
34	Yerla River Irrigation Works ..	..	..	..	..	3,437	16,356
35	Chikhli Canal	..	..	..	..	53	437
36	Maini Tank	..	..	..	..	1,305	5,392

* The classification of crops into "heavy" "medium" and "light" varieties has been introduced only in the
‡ This represents areas in the basin of Lake Beale let out for cultivation and the assessment charged thereon.
[The column "Miscellaneous" represents areas sanctioned and assessed but not irrigated as well as areas under
be properly classified.
§ Exclusive of 1,259 acres of Mamul Bagait area.
‖ Exclusive of Rs. 7,444 on account of enhanced water rates on old works.

G—*contd.*

Hot weather—4 Months.						Miscellaneous†		Grand Total.	
Medium.*		Light.*		Total.					
Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
..	..	..	..	..	..	37	76	47	121
..	..	3	15	3	15	5	24	1,041	5,981
..	..	5	30	5	30	8	31	1,300	7,649
..	..	28	137	28	137	462‡	1,687‡	462‡	1,687‡
						2,085	12,516	10,246	1,59,005
..	..	13	91	13	91	1,156	7,965	7,402	1,25,273
..	..	113	653	113	653	256	2,538	4,210	32,222
..	..	64	140	64	140	518	3,315	1,622	14,672
..	..	25	34	25	34	271	1,244	919	9,956
..	..	43	63	43	63	162	1,203	805	8,335
..	..	4	35	4	35	24	432	578	2,947
4	42	6	38	10	80	210	816	5,881	76,739
2	16	36	255	38	271	235	1,543	17,163	2,99,521
..	..	..	..	..	..	5	23	759	3,325
..	..	..	..	..	..	..	..	437	2,115
..	..	..	..	11	73	33	41	3,225	16,560
..	..	..	..	..	..	..	..	946	3,905
..	..	..	..	56	307	316	600	2,080	8,595
..	..	..	..	..	..	1	3	64	197
..	..	..	..	..	..	10	25	207	709
..	..	..	..	8	53	44	246	1,265§	8,144‖
..	..	..	..	19	81	14	60	4,986	85,575
..	..	..	..	1	4	..	..	912	5,166
..	..	..	..	..	..	..	..	1,597	4,671
..	..	..	..	..	..	8	17	3,775	18,037
..	..	..	..	..	..	..	..	223	1,533
..	..	..	..	..	..	7	16	1,391	5,875

*Deccan Irrigation and Irrigation Development and Research Circles.
†These areas cannot be classified in respect of different crops.
penalties for waste of water, etc., and land insufficiently irrigated besides the areas of miscellaneous crops which cannot

STATEMENT

No.	Name of Work.	Perennial in blocks.		Perennial outside blocks.					
				Heavy.*		Medium.*		Total.	
		Area.	Assessment.	Area.	Assessment.	Area.	Assessment	Area.	Assessment.
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*concld.*	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
	UNPRODUCTIVE—*concld.*								
	Southern Circle.								
37	Gokak Canal 1st Section and Storage Works	..	..	..	..	..	..	90	1,592
38	Muchkundi Tank	..	..	..	..	..	..	..	..
39	Dambal Tank	..	..	..	..	..	..	6	88
40	Medleri Tank	..	..	..	..	..	..	37	542
41	Madag Tank	..	..	..	..	..	..	6	82
42	Asundi Tank	..	..	..	..	..	..	5	56
43	Dharma Canal	..	..	..	..	..	..	..	..
	Total, Unproductive ..	44,212	8,01,914	..	..	..	..	22,973	5,18,454
	Average rate ..		18·14		..		..		22·57
	Grand Total ..	44,212	8,01,914	..	..	..	..	23,134	5,23,314
	Average rate ..		18·14		..		..		22·62

* The classification of crops into "heavy" "medium" and "light" varieties has been introduced only in the

G—*concld.*

Two Seasonal.						Monsoon—4 Months.					
Medium.*		Light.*		Total.		Medium.*		Light:*		Total.	
Area.	Assess-ment.	Area.	Assess-ment.	Area.	Assess-ment.	Area.	Assess-ment.	Area.	Assess-ment.	Area.	Assess-ment.
Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
..	..	..	..	2,237	26,211	..	..	..	..	1,768	7,261
..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	8	49	..	..	..	..	..	..
..	..	..	..	3	25	..	..	..	..	5	21
..	..	..	..	16	126	..	..	..	..	256	1,024
..	..	..	..	33	184	..	..	..	..	5	20
..	..	..	..	..	..	..	..	..	..	441	2,577
..	..	..	..	12,491	1,03,258	..	..	..	..	35,405	1,45,285
	..		..		8·67		..		..		4·13
..	..	..	..	12,491	1,03,258	..	..	..	..	36,270	1,47,880
	..		..		8·67		..		..		4·09

Deccan Irrigation and Irrigation Development and Research Circles.

STATEMENT

No.	Name of Work.	Rabi—4 Months.					
		Medium.*		Light.*		Total.	
		Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
	WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—*concld.*	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
	UNPRODUCTIVE—*concld.*.						
	Southern Circle.						
37	Gokak Canal 1st Section and storage Works	..	..	..	..	1,826	11,736
38	Muchikundi Tank	..	..	..	..	..	....
39	Dambal Tank	..	..	..	..	..	....
40	Medleri Tank	..	..	..	..	2	12
41	Madag Tank	..	..	..	..	207	978
42	Asundi Tank	..	..	..	..	..	....
43	Dharma Canal	..	..	..	..	..	....
	Total, Unproductive ..	..	..	..	..	66,715	2,98,676
	Average rate ..		..		..		4·48
	Grand Total ..	..	..	..	..	69,025	3,10,539
	Average rate ..		..		..		4·49

* The classification of crops into "heavy" "medium" and "light" varieties has been introduced only in the

† The column "Miscellaneous" represents areas sanctioned and assessed but not irrigated as well as areas under be properly classified.

‡ An area of 29 acres was indirectly irrigated by underground percolation from the Mutha Left Bank Canal

G—concld.

Hot weather—4 Months.						Miscellaneous.†		Grand Total.	
Medium.°		Light.°		Total.					
Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.	Area.	Assessment.
Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
..	..	..	..	136	1,090	88	280	6,145	48,170
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	52	104	66	241
..	..	..	..	..	..	..	..	47	600
..	..	..	..	..	..	..	..	485	2,210
..	..	..	..	..	..	..	..	43	260
..	..	..	..	..	..	..	..	441	2,577
..	..	..	..	1,526	7,041	10,803	50,124	1,94,125 ‡29	19,29,752 ‡52
	..		..		4·60		4·64		9·94
..	..	..	..	1,853	8,986	11,491	52,947	1,98,476 ‡29	19,53,838 ‡52
	..		..		4·85		4·60		9·84

Deccan Irrigation and Irrigation Development and Research Circles.

Penalties for waste of water, etc., and land insufficiently irrigated besides the areas of miscellaneous crops which cannot and hence it cannot be classified in respect of different crops. The revenue derived therefrom was Rs. 52.

Administration Report of Irrigation Works in the Deccan and Gujarat for 1931-32 : Review of —

GOVERNMENT OF BOMBAY.

PUBLIC WORKS DEPARTMENT.

Resolution No. P. 22/8270.

Bombay Castle, 12th July 1933.

RESOLUTION OF GOVERNMENT.

The irrigation works dealt with in this Report, which covers the period 1st April 1931 to 31st March 1932 fall under two categories, viz. (*i*) tanks and canals for which capital and revenue accounts are kept, and (*ii*) small tanks, bandharas and drainage channels, for which neither capital nor revenue accounts are kept. The works included under (*i*) are described in detail in Section I of the Report. The works mentioned under (*ii*) are small and numerous and a brief account of them is given in Section II.

2. The total capital outlay on works for which capital and revenue accounts are kept up to the end of the year under review amounted to Rs. 10,47,87,688.

3. Including an area of 8,646 acres, on which a consolidated water and land assessment is levied, the area irrigated was 207,151 acres, as compared with 228,705 acres in the previous year.

4. The gross assessed revenue amounted to Rs. 24,22,599 against Rs. 27,67,176 of the previous year and Rs. 30,29,954, the average of the past three years.

5. The unrealised balance at the close of the year amounted to Rs. 25,93,700. A portion of this amount has since been recovered and steps have been taken to effect recovery of the balance outstanding.

6. The working expenses amounted to Rs. 15,35,282, as compared with Rs. 16,20,459 in the previous year.

7. The net revenue (after deducting working expenses) amounted to—

	Rs.
(*i*) On the basis of assessment	.. 8,87,317
(*ii*) On the basis of realisation	.. 3,45,837

as compared with Rs. 11,46,717 and Rs. 10,82,987, respectively, of the previous year.

8. The statement embodied in paragraph 14 of the Report shows the financial results of the more important works in operation.

9. The total area irrigated by works for which neither capital nor revenue accounts are kept was 165,551 acres and the gross revenue obtained was Rs. 7,07,117. The total expenditure incurred on improvements and repairs to these works amounted to Rs. 3,95,795.

By order of the Governor in Council,

N. N. AYYANGAR,
Deputy Secretary to Government.

To

The Finance Department.
The Revenue Department.
The Commissioner in Sind.
The Commissioner, Northern Division.
The Commissioner, Central Division.
The Commissioner, Southern Division.
The Senior Superintendent of Land Records, Central Division.
The Director of Agriculture.
The Commissioner of Labour and Director of Information.
The Chief Engineer in Sind.
All Superintending Engineers of Circles.
All Collectors in the Presidency proper (except those of Bombay, Thana, Kolaba and Bombay Suburban District).
The Accountant General, Bombay.
The Audit Officer, Lloyd Barrage and Canals Construction.
All Executive Engineers in charge of Irrigation Works in the Deccan and Gujarat.
The Secretary to the High Commissioner for India (by letter).

BOMBAY : PRINTED AT THE GOVERNMENT CENTRAL PRESS.

Digitized with financial assistance from the Government of Maharashtra on 22 July, 2017

MAP OF DECCAN & GUJARAT

TO ACCOMPANY THE IRRIGATION ADMINISTRATION REPORT

1931-32

SCALE 40 MILES TO 1 INCH

REFERENCES

NORTHERN CIRCLE

Ahmedabad Division
Kaira and Panchmahals Division
Surat and Broach Division

CENTRAL CIRCLE

Satara Division
Sholapur Division
Khandesh Division

DECCAN IRRIGATION CIRCLE

Nasik Irrigation Division
Ahmednagar Division
Mutha Canals Division
Malegaon Division

IRRIGATION DEVT. & RESEARCH CIRCLE

Nira L. B. Canal Division

SOUTHERN CIRCLE

Belgaum Division
Dharwar Division
Kanara Division
Ratnagiri Division

NORTHERN CIRCLE

AHMEDABAD DIVISION.

AHMEDABAD DISTRICT

Works in Operation.

1. Nalsarovar Canal
2. Bakhi Reservoir
3. Fatar Dabhoni Drainage
4. Viramgam Drainage
5. Bhadrangam Drainage
6. Sabarmati Drain
7. Ogan Drain
8. Godhavi Garej Drain
9. Chandola Drain
10. Khari Cut
11. Chandola Tank
12. Vasai Reservoir
13. Timba Tank
14. Bhayla Feeder
15. Kankrej & Wadhwan Drainage of Dholka
16. Odhav-Sukpur Drain
17. Sukarpur Drain

KAIRA DISTRICT.

Works in Operation.

18. Khari Shenali
19. Gobhaj Tank
20. Gelti Tank
21. Shetal Reservoir
22. Nadia Reservoir

KAIRA & PANCH MAHALS DIVISION

(i) KAIRA

Works in Operation — Incomplete Work:

1. Mater Drain
2. Umar Tank
3. Sagrana Tank
4. Anand Nagri Drain
5. Sandesar Tank
6. Sajod Tank
7. Sindi Tank
8. Khapreth Tank
9. Pandhar Tank
10. Kanewal Tank
11. Tamper Gorad Drain
22. Faraj Tank

(ii) PANCH MAHALS

12. Mandwan Tank
13. Kanewadi Tank
14. Mowalia Tank
15. Kalol Tank
16. Bahai Tank
17. Patelar Tank
18. Sangada Tank
19. Bavlia Tank
20. Chhaokhara Ambli Tank
21. Pavia Tank
22. Wavad Depot Tank.
23. Kankrej Tank
24. Kanoda Tank
25. Gomai Tank
26. Kanjeeta Wavdhi Tank
27. Wadi Talav Tank
28. Sabi River Project

SURAT & BROACH DIVISION.

(i) BROACH.

Works in Operation.

1. Kim Mahajhar Jambusar Drainage Channel
2. Mahendra Drainage Channel
3. Nandhen Drainage Channel
4. Amaravati Drainage Channel
5. Godhar Drainage Channel
6. Waramba &c.
7. Channel from Ghor Village to Kim Channel near Ghor
8. Kosbad Sub Drainage Channel
9. Kosbad Village Road &c.
10. Ajabag Dandia and Dandiali
11. Hirpur Channel
12. Dahanukar Pumpkin Channel
13. Pakhajan-Ankleshwar Channel
14. Kavidra-Akhaol Channel
15. Jolva Channel
16. Kahod Channel
17. Kahod Village Road &c.
18. Kahod Village Road &c.
19. Kahod Village Road &c.
20. Asta Channel
21. Asta Village Protection Bund
22. Hansot &c.
23. Amod Village Road of Kadhol Village
24. &c. &c. at Lakhigam
25. &c. &c. at Hathigam
26. &c. &c. at Gavadhol
27. Bund at Nada Village
28. &c. at Hansot
29. &c. Between Nada and Kadhol Villages

(ii) SURAT

Works in Operation.

31. Mandvi Channel
32. Wagheti Protective Works
33. Bund between Pipaser and Kadhoni Villages

CENTRAL CIRCLE

SATARA DIVISION

Works in Operation.

1. Krishna Canal
2. Mayni Tank
3. Upper Man Canal System
4. Yerla River Works
5. Nira Tank
6. Chikhli Canal
7. Ekeshi Canal
8. Pingli Tank.

Incomplete Works:

7. Goregaon Tank

SHOLAPUR DIVISION.

Works in Operation.

1. Bhima Tank
2. Ashti &c.
3. Pathri &c.
4. Waddekbal Tank
5. Kumgaon &c.

Incomplete Works:

6. Mangi Tank
7. Mangi Tank

KHANDESH DIVISION.

Works in Operation.

1. Mukti Tank
2. Tarwadi &c.
3. Upper Panjhra River Group
4. Lower Panjhra River Group
5. Bori River Group
6. Kan River Group
7. Amalner &c. L. B. Canal
8. &c. L. B. &c.
9. Dhanur &c.
10. Bhatgaon &c.
11. Mahasala &c.

Incomplete Work.

12. Patonagada Tank

DECCAN IRRIGATION CIRCLE

NASIK IRRIGATION DIVISION.

Works in Operation.

1. Waghad Tank
2. Ozarkhed Tank
3. Chandwad Tank
4. Girna L. B. Canal
5. Palsbad &c.
6. Dindori &c.
7. Other Feeder Canal.
8. Vilhod Tank
9. Girna Group
10. Aram Group
11. Mohsan Group
12. Gaikwad &c.
13. Kasbe &c.
14. Dhone &c.
15. Deo
16. Kalwadgroup Group
17. Dorna Reservoir (Lake Basin)
18. Godavari R. B. Canal
19. Gangapur &c.

Works under Construction—Incomplete Works.

20. Odki Tank

AHMEDNAGAR DIVISION.

Works in Operation.

1. Wilson Dam (Lake A. 102)
2. Mhaisal Tank
3. Khirvirahal Tank
4. Pimpalgaon Tank

Works under Construction.

5. Visapur Tank.

MUTHA CANALS DIVISION.

Works in Operation.

1. Lake Vile
2. Mutha R. B. Canal
3. Mutha L. B. &c.
4. Mutha Tank
5. Kasarsai Tank
6. Pawana Tank
7. Shirakarwadi Tank

Incomplete Works.

8. Khadakwasla Tank
9. Varasgaon Tank

Works under Construction and in Operation.

10. Lloyd Dam on Mutha River (Lake Fife)
11. Nira R. B. Canal (from 0/00 to 6/00 M.)

MALEGAON DIVISION.

Works under Construction and partly in Operation.

12. Nira R. B. Canal (from 6/00 to 19/00)

Work in Operation.

13. Ekrukh Tank

Incomplete Work.

14. Waghadevi Tank
15. Sonbehid Tank

IRRIGATION DEVT. AND RESEARCH CIRCLE

NIRA LEFT BANK CANAL DIVISION.

Works in Operation.

1. Nira L. B. Canal
2. Shirpal Tank

SOUTHERN CIRCLE

BELGAUM DIVISION

Works in Operation.

1. Gokak Canal with Sluices and Storage Works
2. Ghataprabha Tank

DHARWAR DIVISION.

Works in Operation.

1. Unnihal Tank
2. Kudpur &c.
3. Nyalag &c.
4. Aravali Tank
5. Dharwar and Navgund Canals
6. Marchenahl Tank

KANARA DIVISION

Work in Operation.

1. Mariyalag Tank